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Apelon Distributed Terminology System (DTS)

Ontylog Extension Namespaces and Extension Namespace Classification in DTS

Table of Contents

Introduction

Overview

An **Ontylog** terminology (referred to as a **namespace** in DTS, and throughout this guide) is one developed using Apelon's Terminology Development Environment (TDE) suite of tools, including the Ontylog Editor. In an Ontylog-type namespace, concepts are organized into a **hierarchy tree**.

Using the **DTS Editor** you can view a hierarchy tree of terms (concepts) in any selected Ontylog subscription namespace. You also can view attribute details for any selected concept in the Ontylog namespace.

Ontylog Extension Namespaces

You cannot perform edits directly **to** an Ontylog-type **subscription** namespace using the DTS Editor. However, the DTS Editor allows you to create and maintain new local content (concepts and concept relationships) **for** each Ontylog subscription namespace. You do this by creating an **Ontylog Extension** namespace.

Each Ontylog Extension namespace is an extension of a specific Ontylog subscription namespace. You create an Extension Namespace for the purpose of creating and/or maintaining the new local content for the linked Ontylog subscription namespace. This guide includes discussions and procedures related to creating an Ontylog Extension namespace. Refer to the *Create an Ontylog Extension Namespace Using the DTS Editor* discussion for procedures on creating an Extension namespace.

Ontylog Extension Namespace Classification

Each Extension namespace is comprised of **supplemental** content that you create locally. In an Ontylog-type namespace, concepts are organized into a hierarchy by a process called **classification**. DTS allows you to classify each Extension namespace through this classification process. Classification produces a namespace's **inferred view** from the **defined view**. The inferred view of the Extension namespace takes defined concept and role relationships into account, then, if necessary, positions concepts in the namespace hierarchy based on these inferred relationships.

You can view and edit concepts in the Extension namespace in the **defined view**. In the defined view of the namespace you can modify the **Primitive/Defined** designation, the **defining concept**, and **defining role** attributes for an Ontylog Extension concept.

You can **classify** the content in an Extension namespace against the linked Ontylog subscription content. Classification produces the Extension namespace's **inferred view** from the defined view.

The Extension namespace concept derives its **kind** (automatically) from the defining concept you select in the Ontylog namespace. The defined view reflects positioning of each concept in the namespace hierarchy prior to **classification**.

Modular Classifier

To run classification of an Extension namespace to produce its inferred view, you must install and set up the **Modular Classifier** for each individual Ontylog subscription namespace that is linked to an Ontylog Extension namespace. This guide includes discussions and procedures related to deploying the required Modular Classifier files, then running the classifier.

Refer to the *Modular Classifier Installation and Setup* discussions for procedures on installing and deploying the Modular Classifier. Refer to the *Classify an Ontylog Extension Namespace* discussion for procedures on running the Modular Classifier.

Modular Classifier Installation and Setup

Introduction

You must **classify** an Extension namespace in order for changes to that namespace (i.e., new local content that extends the linked Ontylog subscription namespace) to be reflected in the Extension namespace's inferred view. Classification updates the inferred information for an Extension namespace. You perform classification using a tool called the **Modular Classifier**, which you installed as part of the DTS installation. Note that additional setups are required before you can classify an Extension namespace.

The Modular Classifier runs as a servlet running a classifier instance, under a servlet container such as **Tomcat**. You must increase the memory setting in the **tomcat.bat** file (***DTSInstall*\bin\browser**) to support the Modular Classifier if you classify large knowledgebases like SNOMED.

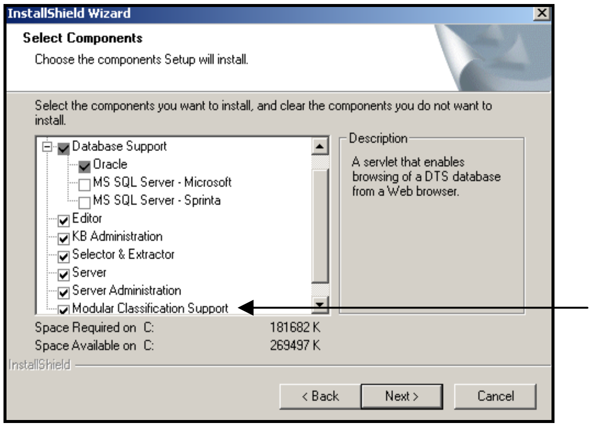
Modular Classifier Deployment Wizard

For each prospective Subscription namespace for which a modeler will create and classify a linked Ontylog Extension namespace, you must use the **DTS Modular Classifier Deployment Wizard*** to create and deploy the required Modular Classifier **Web Application Archive** (**war**) files. You then must map that Extension namespace to the URL for the specific Modular Classifier you deploy. Instructions for installing and setting up the Modular Classifier are included in the following discussions.

Create War Files Using the Modular Classifier Deployment Wizard

You must use the DTS Modular Classifier Deployment Wizard utility to create and deploy the required Modular Classifier **Web Application Archive** (**war**) files. The Wizard guides you through deploying the desired classifiers as a web application.

1. To install the Modular Classifier Deployment Wizard, you must be sure the **Modular Classifier Support** component is selected during your DTS installation (it is selected as the default). Note the **InstallShield Wizard** illustration.



InstallShield Wizard

Select Components

Choose the components Setup will install.

Select the components you want to install, and clear the components you do not want to install.

- ☑ Database Support
  - ☑ Oracle
  - □ MS SQL Server - Microsoft
  - □ MS SQL Server - Sprinta
- ☑ Editor
- ☑ KB Administration
- ☑ Selector & Extractor
- ☑ Server
- ☑ Server Administration
- ☑ Modular Classification Support

Description

A servlet that enables browsing of a DTS database from a Web browser.

Space Required on C: 181682 K

Space Available on C: 269497 K

Modular Classifier Support Component

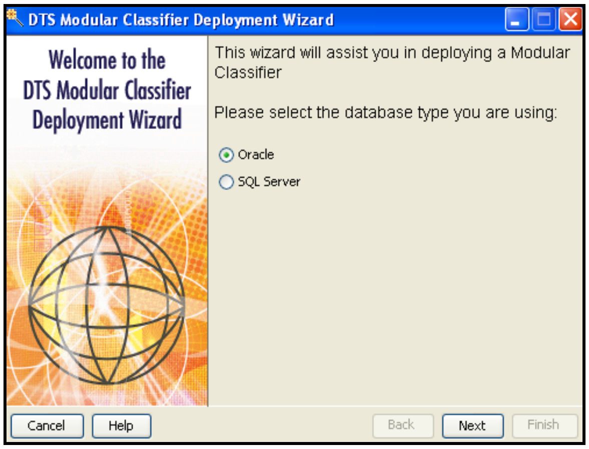
This installs the **Modular Classifier Deployment Wizard**, and creates a shortcut option for the Wizard on your *Windows* **Start** menu.

> **Note**: The illustrated component selection window does not display for DTS Linux installations. The **Modular Classifier Deployment Wizard** is installed as a default (along with other DTS components) for DTS on Linux.

2. On the *Windows* **Start** menu, select the **Modular Classifier Deployment Wizard** option (**Start>Apelon>*DTSInstall*>Modular Classifier Deployment Wizard**) to start the wizard.

> For a DTS Linux installations, execute **mcdeploy.sh** (**bin/mc**) to start the **Modular Classifier Deployment Wizard**.

The Wizard *Welcome* window displays.



DTS Modular Classifier Deployment Wizard

Welcome to the DTS Modular Classifier Deployment Wizard

This wizard will assist you in deploying a Modular Classifier

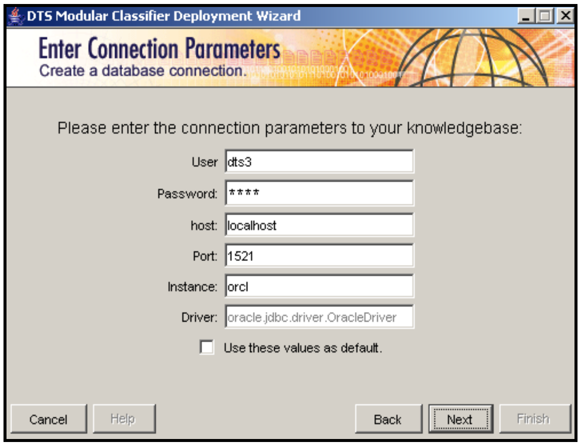
Please select the database type you are using:

● Oracle

○ SQL Server

3. Specify the kind of database you have installed. If you are using an Oracle database, the default (**Oracle**) applies. Click **SQL Server** if this is a DTS *Windows* installation, and you are using a *Microsoft* SQL server**.** Click **Next**.

4. The *Enter Connection Parameters* window displays. Here you indicate the location of your DTS knowledgebase (i.e., the machine where your namespaces are located). The defaults reflect the connection parameters for your machine.



Enter Connection Parameters

Create a database connection.

Please enter the connection parameters to your knowledgebase:

User dts3

Password: ****

host: localhost

Port: 1521

Instance: orcl

Driver: oracle.jdbc.driver.OracleDriver

□ Use these values as default.

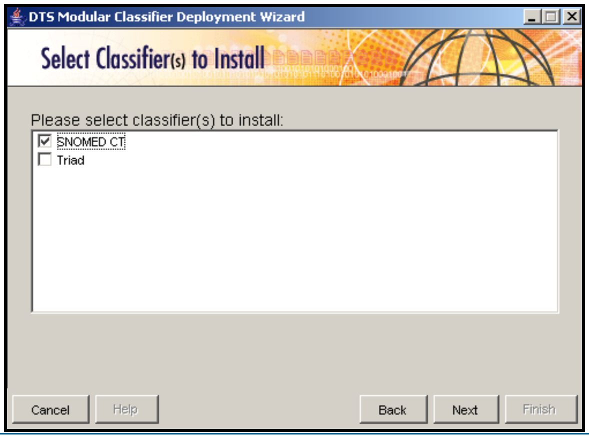
If your DTS knowledgebase is located on another machine, override the defaults with the appropriate parameters. Click **Use these values as default** to save these parameters for future sessions, then click **OK**.

5. The *Classifier Selection* window displays. Apelon delivers each subscription namespace to you in the form of **CDF** files, which you import using the **Subscription Import Wizard**.

   For *Windows* installations, select *Windows* **Start** menu>**Apelon>*DTSInstall*> Subscription Import Wizard**. For DTS installations on Linux, execute **subscriptionImportWizard.sh** in the **bin** subdirectory).

   These files include a CDF file and classifier file (**classification graph**) that are imported into a table in DTS. Refer to the *Import Ontylog Subscription Updates with a "Classification" Graph* discussions later in the guide for subscription import procedures.

   The *Classifier Selection* window lists each Ontylog subscription namespace for which Apelon has provided a classification graph to you as part of the most recent delivered version of the namespace.



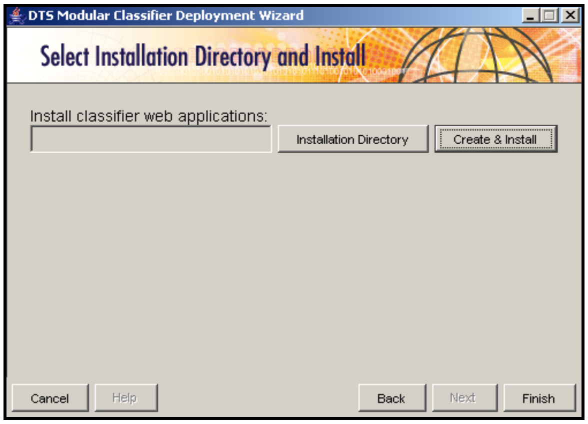
Select Classifier(s) to Install

Please select classifier(s) to install:

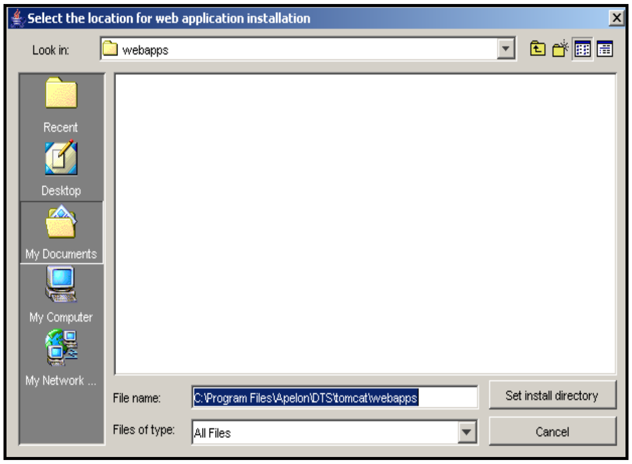
☑ SNOMED CT

□ Triad

6. Click the box adjacent to each Ontylog subscription namespace for which you want to install a classifier, then click **Next**. The *Select/Install* window displays.


DTS Modular Classifier Deployment Wizard
Select Installation Directory and Install
Install classifier web applications:
Installation Directory
Create & Install
Cancel
Help
Back
Next
Finish

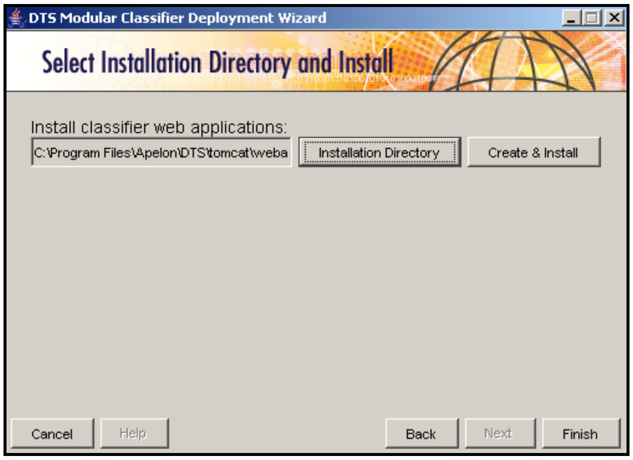
On this window you specify the location for deployment of the required classification **war** file(s). Click **Installation Directory** to browse locations for deployment of the files. The following window displays.



File name: C:\Program Files\Apelon\DTS\tomcat\webapps

Files of type: All Files

7. Select the desired deployment location (e.g., a servlet container, such as ***DTSInstall*****\tomcat\webapps**) then click **set install directory**. The location you selected displays in the *Select/Install* window.

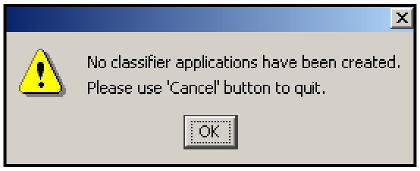

DTS Modular Classifier Deployment Wizard

Select Installation Directory and Install

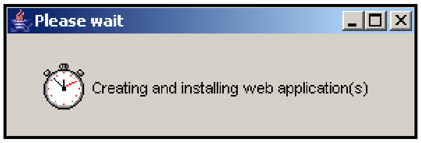
Install classifier web applications:

C:\Program Files\Apelon\DTS\tomcat\weba

8. If you click **Finish** at this point, the following window displays to indicate that no classifiers were created.

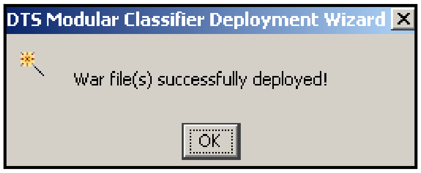

No classifier applications have been created.
Please use 'Cancel' button to quit.

Click **Create & Install** to create the required war files and deploy them to the location you selected. The following window displays to indicate that creation and installation of the web application is in progress.


Please wait

Creating and installing web application(s)

The following window displays to confirm successful deployment of the files.


DTS Modular Classifier Deployment Wizard

War file(s) successfully deployed!

Click **OK** to acknowledge the message.

9. Click **Finish** to exit the Modular Classifier Deployment Wizard.

10. Check the **webapps** directory in which you installed the **war** files to make sure the files were deployed correctly. For the example used in these procedures, the file **snomedct.war** was created and deployed to ***DTSInstall*\tomcat\webapps**.

***** A modified version of the open source Java Wizard Framework was used in development of the DTS Modular Classifier Deployment Wizard, which is included in this release. The Java Wizard framework and its use are covered by the **GNU Lesser General Public License**. A copy of the license is included in the **license.txt** file in the following installed DTS subdirectory:

***DTSInstall*\samples\wizard\license.txt**

You also can click the following link to view the license:

http://www.opensource.org/licenses/lgpl-license.php.

Update the Classifier Properties File

After you create and deploy the war files, you must update the **mc.properties** file (***DTSInstall*\bin\server**) on the machine on which the DTS Server is running. You update mc.properties to reflect the mapping of each prospective Ontylog Extension namespace that a namespace modeler might create, to the URL for the Modular Classifier you just created and deployed.

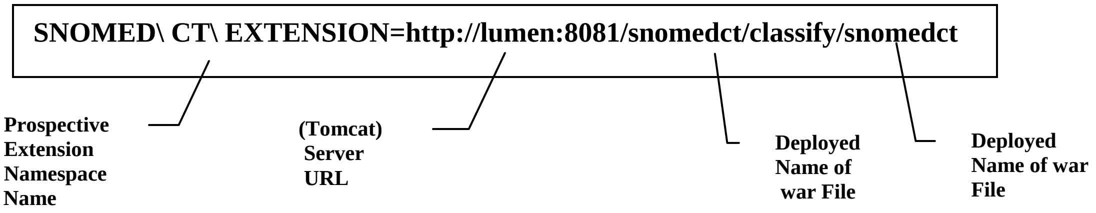
Note: If a modeler client will connect to the DTS Editor through a JDBC local connection, the mc.properties file on the client machine must be updated to reflect correct mappings of Extension namespaces the modeler might create to the URLs for the Modular Classifier you deploy.

1. Open the **mc.properties** file (**DTS\bin\server**). In the following file illustration, note the highlighted URL that was added for the classifier just deployed.

```
##########################################################
#
# MC server connection parameters.
# <Ontylog Extension Namespace>=<connection url>
# The url is configured for a namespace via the following convention:
# http://[server]/[warfilename]/classify/[warfilename].
#
###########################################################
TriadLocal=http://lumen:8081/triad/classify/triad
Triad\ Local=http://lumen:8081/triad/classify/triad
Local\ Namespace=http://lumen:8081/triad/classify/triad
SNOMED\ CT\ EXTENSION=http://lumen:8081/snomedct/classify/snomedct

###########################################################
#
# Max number of concepts to be classified
#
###########################################################
MAX_CONCEPTS=1000000
```

2. Enter the required information in the following format.



```
SNOMED\ CT\ EXTENSION=http://lumen:8081/snomedct/classify/snomedct
```

Prospective Extension Namespace Name
(Tomcat) Server URL
Deployed Name of war File
Deployed Name of war File

3. You must restart the DTS Server on the machine on which it is installed to make these new mappings effective.

   The **ClassifyQuery** server will connect to the Modular Classifier using the URL that you mapped to the Extension namespace (**SNOMED\ CT\ EXTENSION** in this case). **ClassifyServer** then will service the request for classification for the Ontylog Extension namespace. When the classification request is received, **ClassifyServer** will find the Modular Classifier URL for the Ontylog Extension namespace, prepare the request data, and send the request data to the URL.

Create and Maintain Ontylog Extension Namespaces

Introduction

Ontylog Namespaces

Ontylog is a language used to build and maintain large knowledgebases using description logic. Concepts in Ontylog are organized into a taxonomy by a process called **classification**. An Ontylog namespace is one developed using Apelon's Terminology Development Environment (TDE) suite of tools, including the Ontylog Editor.

The DTS Editor provides view capabilities for Ontylog subscription namespaces. In the DTS Editor you can view the concept hierarchy tree in any selected Ontylog vocabulary namespace. You also can view attribute details (e.g., properties, roles) for any selected concept in the namespace.

You cannot use the DTS Editor to perform edits directly **to** an Ontylog-type **subscription** namespace. However, the DTS Editor allows you to create and maintain new content **for** the Ontylog subscription namespace through two different approaches.

- You can create a new **local**, editable Thesaurus namespace using the DTS Editor
    - Within this local namespace you can add new properties to the Ontylog subscription concepts, create synonyms, create associations, and add qualifiers to properties and associations.
    - Because the local content is in a separate namespace, this approach prevents inadvertent overwrite of any new local data (entered using the DTS Editor) if updated TDE content is migrated into the DTS knowledgebase at a later time.
    - Refer to the *Current Local Namespace* discussions in the *DTS Editor Guide* for procedures on setting a **current local** namespace in the DTS Editor.
- You can create an **Ontylog Extension** namespace
    - As its title implies, each Ontylog Extension namespace is an **extension** of a specific Ontylog subscription namespace, created for the purpose of creating/maintaining new local content for the linked Ontylog subscription namespace.
    - In the Extension namespace you can add new concepts, add or change concept relationships (i.e., superconcept/subconcept relationships) add or change role relationship values, and add new associations for the Ontylog namespace.

- You can classify the Extension namespace against the linked Ontylog subscription namespace, then view the new hierarchy for the Ontylog Extension namespace; the displayed Extension namespace hierarchy reflects both the linked Ontylog subscription namespace concepts, **and** concepts from the Extension namespace.
- Refer to the *Classify an Ontylog Extension Namespace* discussions for more on Ontylog Extension namespaces classification.

Create an Ontylog Extension Namespace Using the DTS Editor

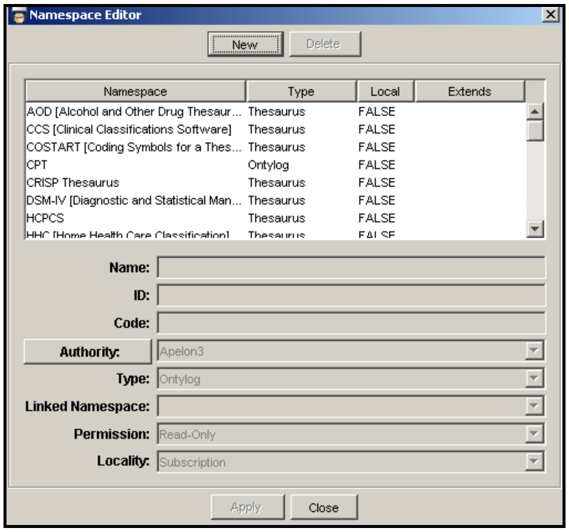
Follow this procedure to create a new Ontylog Extension namespace using the DTS Editor. Each namespace of this type allows you to extend a specifically linked Ontylog subscription namespace with concepts that you define locally. You may link each Extension namespace to only a **single** Ontylog subscription namespace (you cannot modify this link once you establish it). You can, however, create multiple Extension namespaces that link to the same Ontylog subscription namespace.

The **role** and **kind** definitions available for assignment to new concepts in the Extension namespace are from the linked Ontylog subscription namespace. You cannot define new roles or kinds in the DTS Editor.

You can run the Modular Classifier to classify new and/or modified content in the Extension namespace. Classification is performed on content in the Extension namespace, which was derived originally from the linked Ontylog subscription namespace.

Note that you must be connected to the DTS Editor using a JDBC connection or socket server connection in order to create a new local namespace (regardless of whether or not the local namespace is an Extension type or not). You cannot create a local namespace if you connected to the DTS Editor using a secure socket server connection (the **New** button is disabled). Refer to the *Connect to DTS Editor* discussions in the *DTS Editor Users Guide* for connection procedures.

1. Select *Namespace* from the *DTS Editor Main* window **Tools** menu. The *Namespace Editor* window displays.



Namespace	Type	Local	Extends
AOD [Alcohol and Other Drug Thesaur...	Thesaurus	FALSE	
CCS [Clinical Classifications Software]	Thesaurus	FALSE	
COSTART [Coding Symbols for a Thes...	Thesaurus	FALSE	
CPT	Ontylog	FALSE	
CRISP Thesaurus	Thesaurus	FALSE	
DSM-IV [Diagnostic and Statistical Man...	Thesaurus	FALSE	
HCPCS	Thesaurus	FALSE	
HHC [Home Health Care Classification]	Thesaurus	FALSE	

Name:

ID:

Code:

Authority: Apelon3

Type: Ontylog

Linked Namespace:

Permission: Read-Only

Locality: Subscription

2. Click **New**. The fields in the lower portion of the window are enabled.

3. In the *Name* field, specify the name of the Ontylog Extension namespace you are creating; the namespace name should not include double quotes (**”**).

   To perform classification on this Extension namespace, a **Modular Classifier** must be created and deployed for it, and the namespace must be mapped to the URL for that Modular Classifier. Refer to the *Modular Classifier Installation and Setup* discussions earlier in the guide for Modular Classifier deployment and setup procedures.

4. In the *ID* field, specify the *ID* for your new Ontylog Extension namespace, which can be between zero and 65535. If you specify a number less than **32768**, DTS adds the number 32768 to the *ID* number you specify to create an **internal** namespace ID.

   The calculated *ID*, as well as the ID number you entered (referred to as the **relative ID**) display for your reference. If the calculated number is in use already, a message displays to indicate the duplication; enter an alternate ID number.

   You must specify this internal namespace ID if you want to publish this local namespace content for your own subscribers using the **kbcontent-publish** utility. Refer to the *Publish Client’s Local Namespace* discussion in the *Knowledgebase Administrators Guide* for local content publishing procedures.

5. Specify a namespace *Code* for additional namespace identification; the code can be formatted however you want.

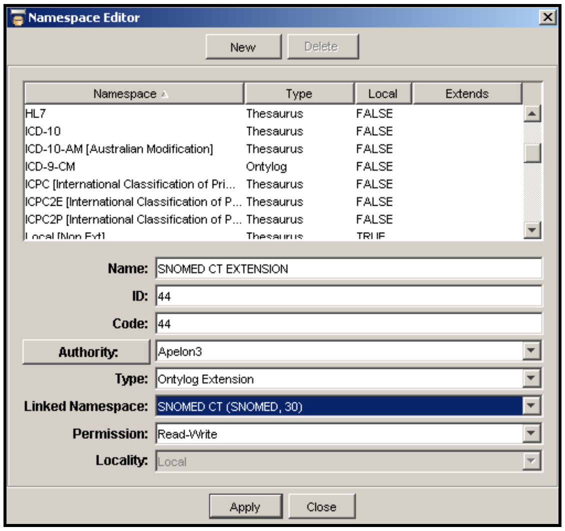
6. An **authority** indicates the organization (e.g., **U.S. National Library of Medicine**) that approved and/or certified a vocabulary. From the *Authority* field dropdown list, select the established authority for the new namespace. Refer to the *Authority View and Maintenance* discussions in the *DTS Editor Users Guide* for procedures on viewing and creating authorities.

7. From the *Type* field dropdown list, select **Ontylog Extension** as this namespace type. Refer to the *Ontylog Namespaces* discussion earlier in this section.

8. The *Linked Namespace* field is enabled only if you are creating an Ontylog Extension namespace (i.e., the value in the *Type* field is **Ontylog Extension**); the field is disabled for other namespace types. From the *Linked Namespace* field dropdown list, select the Ontylog subscription namespace for which you are creating this new Extension namespace. The dropdown list includes only Ontylog subscription namespaces.

9. The namespace permission indicates whether or not the Ontylog Extension namespace is editable. From the *Permission* field dropdown list, select the level of permission (**Read-Only** or **Read-Write**) a user will have in this namespace.

10. The namespace *Locality* indicates how the namespace data was acquired. **Local** is the value for any namespace you create using the DTS Editor, including Ontylog Extension namespaces, and the field is not editable.



Namespace	Type	Local	Extends
HL7	Thesaurus	FALSE	
ICD-10	Thesaurus	FALSE	
ICD-10-AM [Australian Modification]	Thesaurus	FALSE	
ICD-9-CM	Ontylog	FALSE	
ICPC [International Classification of Pri...	Thesaurus	FALSE	
ICPC2E [International Classification of P...	Thesaurus	FALSE	
ICPC2P [International Classification of P...	Thesaurus	FALSE	
Local [Non Ext]	Thesaurus	TRUE	

Name: SNOMED CT EXTENSION

ID: 44

Code: 44

Authority: Apelon3

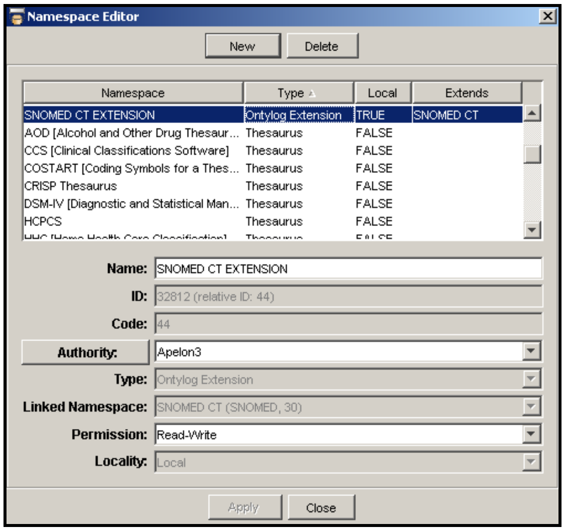
Type: Ontylog Extension

Linked Namespace: SNOMED CT (SNOMED, 30)

Permission: Read-Write

Locality: Local

11. After you enter all information for the new Extension namespace, click **Apply** to add the namespace to the DTS knowledgebase. The namespace is added to the table on the *Namespace Editor* window. The namespace highlighted in the illustration is an Ontylog Extension namespace.



Namespace	Type	Local	Extends
SNOMED CT EXTENSION	Ontylog Extension	TRUE	SNOMED CT
AOD [Alcohol and Other Drug Thesaur...	Thesaurus	FALSE	
CCS [Clinical Classifications Software]	Thesaurus	FALSE	
COSTART [Coding Symbols for a Thes...	Thesaurus	FALSE	
CRISP Thesaurus	Thesaurus	FALSE	
DSM-IV [Diagnostic and Statistical Man...	Thesaurus	FALSE	
HCPCS	Thesaurus	FALSE	
HHC [Home Health Care Classification]	Thesaurus	FALSE	

Name: SNOMED CT EXTENSION
ID: 32812 (relative ID: 44)
Code: 44
Authority: Apelon3
Type: Ontylog Extension
Linked Namespace: SNOMED CT (SNOMED, 30)
Permission: Read-Write
Locality: Local

Note that the *Linked Namespace* field is disabled for future edits, preventing this Extension namespace from being linked to any other Ontylog subscription namespace.

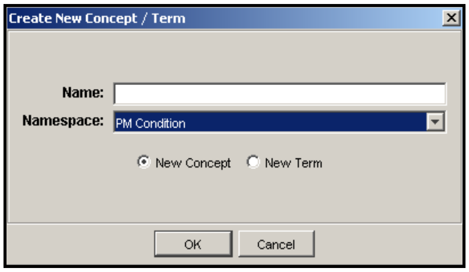
The *Namespace Editor* window remains displayed; you can click **New** again and create additional Extension namespaces.

12. When you finish creating, viewing, and editing namespaces, click **Close** to close the *Namespace Editor* window.

Create a New Concept in the Ontylog Extension Namespace

Follow this procedure to add a new concept to an Extension namespace.

1. Click **New** in the *Concept/Term Details* tab in the right panel of the *DTS Main* window. The *Create New Concept/Term* window displays.



Name:
Namespace: PM Condition

● New Concept ○ New Term

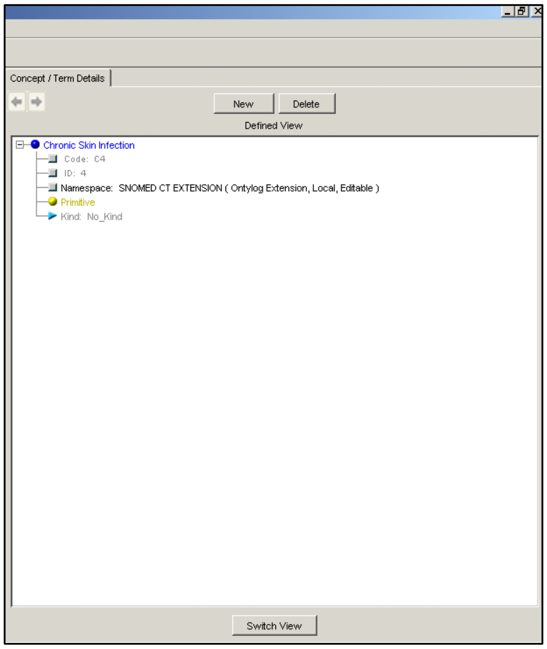
2. Enter the name of the new concept (e.g., **Chronic Skin Infection**) in the *Name* field. If the concept name is identical to an exiting concept name in the Ontylog subscription namespace, a message window displays to indicate this; click **OK**, then specify a unique name for the new concept.   The DTS Editor will not allow you to create a concept with a name that is used by a concept in the linked Ontylog namespace.

3. From the *Namespace* field dropdown list, select the Extension namespace (e.g., **SNOMED CT EXTENSION**) to which the new concept will be added. Only local, writable namespaces are included in the namespace list.

4. The default, **New Concept**, applies if you are adding a new concept to the Extension namespace.

5. To cancel the addition of the concept or term to the Extension namespace, click **Cancel**. The *Create New Concept/Term* window closes. Click **OK** to add the concept or term to the selected namespace.

   The concept name displays in the *Concept/Term Details* panel in the **defined** view, and references the Extension namespace in which you created the concept. The concept **Code** and **ID** (which are assigned to the new concept automatically) display as well.

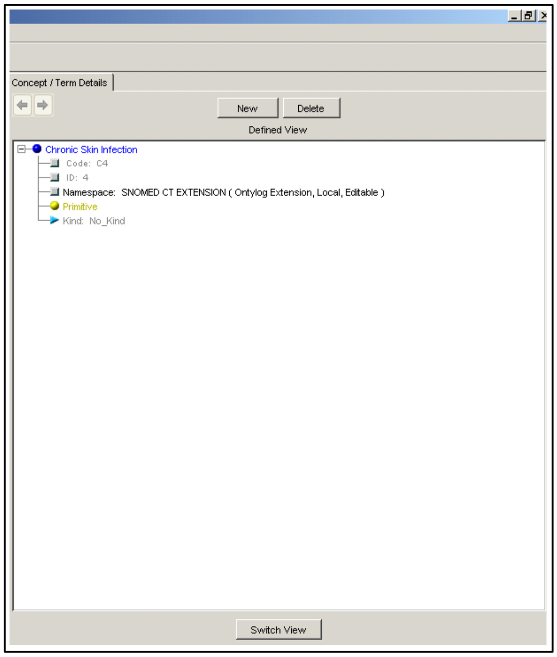
   

   Chronic Skin Infection
   Code: C4
   ID: 4
   Namespace: SNOMED CT EXTENSION (Ontylog Extension, Local, Editable)
   Primitive
   Kind: No_Kind

   To change the format of the assigned concept code and/or ID, follow the procedures outlined in the *Code and ID Generator* discussions in the *DTS Editor Users Guide*.

6. The concept displays in the *Concept/Term Details* panel in the **defined** view. The defined view permits the broadest range of options for defining concept attributes: **Primitive/Defined**, **Kind**, **Defining Superconcept**, **Defining Role**, **Synonym**, **Property**, **Association** (in the inferred view, **Synonym**, **Property**, and **Association** are the only attributes you can define for the new concept).

   At this point the **Switch View** button on the panel is enabled.



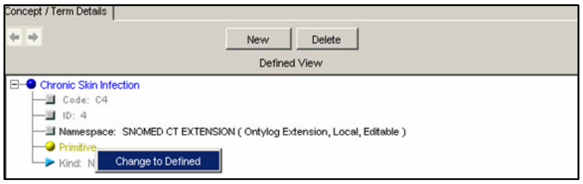
Chronic Skin Infection
Code: C4
ID: 4
Namespace: SNOMED CT EXTENSION (Ontylog Extension, Local, Editable)
Primitive
Kind: No_Kind

The display in the *Concept/Term Details* panel remains in the defined view until you click **Switch View** to change it (i.e., to the inferred view). If you subsequently drag another concept into the *Concept/Term Details* panel (from any Ontylog subscription namespace, or another Ontylog Extension namespace) that concept will display in the current view.

Change a New Concept from "Primitive" to "Defined"

Concepts are either **primitive** or **defined**. The difference between a primitive and defined concept is a matter of completeness of the definition; primitive definitions are not complete. Primitive concepts usually appear higher up in the namespace hierarchy than defined concepts. The designation of a concept as **primitive** or **defined** has an effect on the way classification is performed. The Modular Classifier will not infer that a **primitive** concept subsumes another concept.

To change a **primitive** concept to **defined**, right click the new concept's **Primitive** attribute on the *Concept/Term Details* panel, then click the displayed **Change to Defined** option. You should create new concepts as **Primitive** in the Extension namespace.



Chronic Skin Infection
Code: C4
ID: 4
Namespace: SNOMED CT EXTENSION (Ontylog Extension, Local, Editable)
Primitive
Kind: N

Refer to the section titled *The Ontylog Language* in the *Ontylog Editor Users Guide* (included with the TDE product) for more on **primitive** and **defined** concepts.

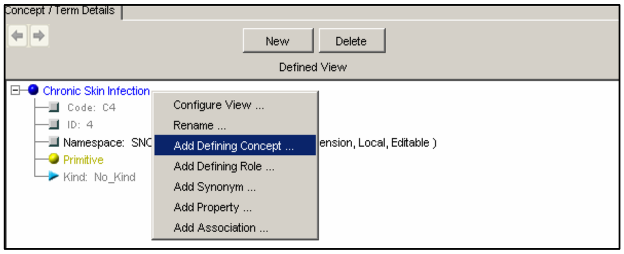
Add a Defining Concept for the New Concept

Each concept in an Ontylog namespace must have an assigned **kind**, which identifies the concept's type (specimen, procedure, etc.). The author of the Ontylog subscription namespace must have created the kinds (in TDE) used in that namespace; you cannot create kinds in DTS.

For each concept you create in the Extension namespace you must assign a **defining concept**, or **parent** concept (i.e., the concept that is placed immediately above the new concept in the Ontylog namespace). The new concept in the Extension namespace always derives its kind (automatically) from the defining concept in the Ontylog namespace.

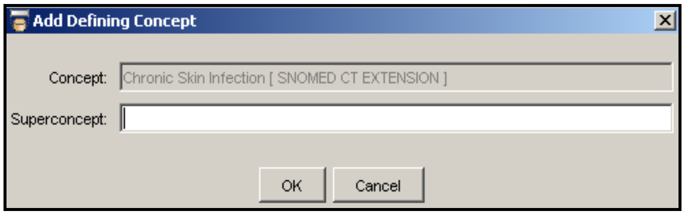
Follow this procedure to establish a defining concept for the new concept in the Extension namespace.

1. Right click on the concept name in the *Concept/Term Details* panel.
2. When the attribute edit menu displays, click **Add Defining Concept**.

   Chronic Skin Infection
   Code: C4
   ID: 4
   Namespace: SNC ension, Local, Editable)
   Primitive
   Kind: No_Kind

   The *Add Defining Concept* window displays.

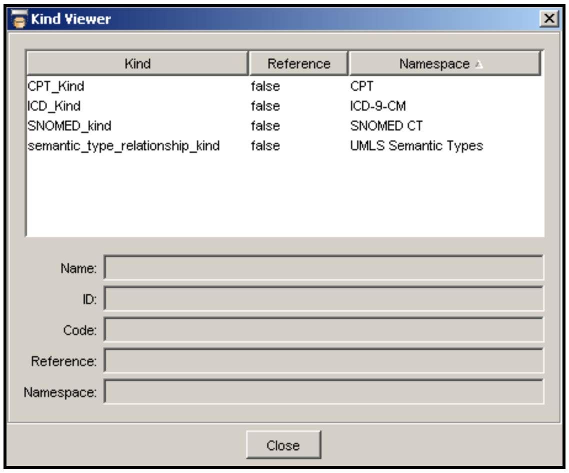
   

   Concept: Chronic Skin Infection [SNOMED CT EXTENSION]
   Superconcept:

   Note that the *Concept* field (display only) references the new concept name, as well as the Extension namespace.

3. Each concept in an Ontylog namespace must be assigned a **kind**. To help insure that you select a superconcept with the appropriate kind (i.e., for the new concept to assume) drag the prospective superconcept to a floating *Concept/Term Details* panel, and switch to the defined view to display the concept's kind.
4. A *Kind Viewer* floating window also is available for you to view existing kinds. Click the **Kinds** option in the *DTS Editor Main* window **Tools** menu to display the *Kind Viewer* floating window.

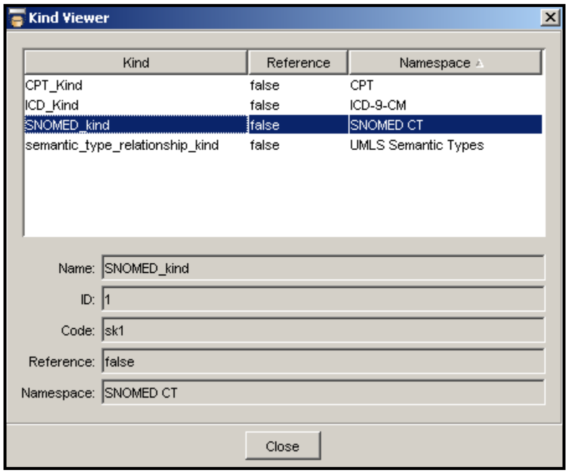
This window lists all **kinds** that have been defined within all of the **Ontylog** namespaces in your knowledgebase.



Kind	Reference	Namespace
CPT_Kind	false	CPT
ICD_Kind	false	ICD-9-CM
SNOMED_kind	false	SNOMED CT
semantic_type_relationship_kind	false	UMLS Semantic Types

Name:
ID:
Code:
Reference:
Namespace:

Modify the listing sort by clicking the desired column header. Click the desired kind name to view details on that kind.

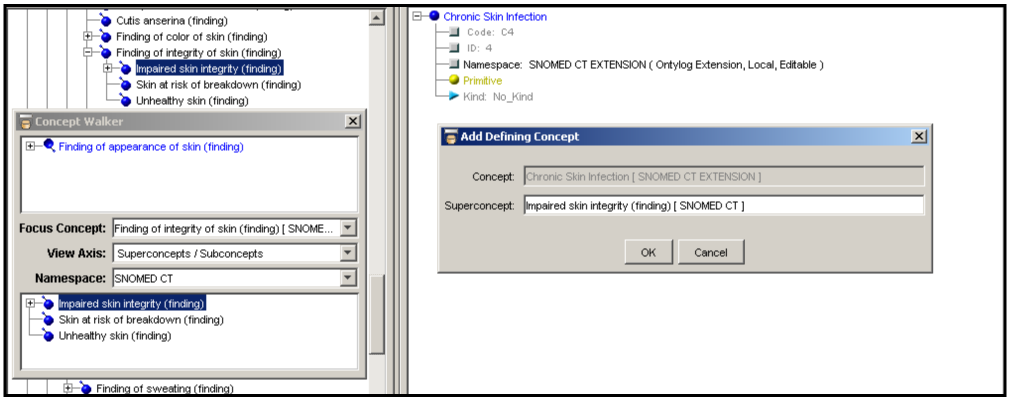


Kind	Reference	Namespace
CPT_Kind	false	CPT
ICD_Kind	false	ICD-9-CM
SNOMED_kind	false	SNOMED CT
semantic_type_relationship_kind	false	UMLS Semantic Types

Name: SNOMED_kind
ID: 1
Code: sk1
Reference: false
Namespace: SNOMED CT

Note that only kinds with a **Reference** value of **false** will be considered during classification. Any kind with a **Reference** value of **true** is a "reference" kind; concepts of that kind are not considered during classification.

5. From another displayed panel (e.g., *Concept Tree*, *Concept Walker*) drag the superconcept from the Ontylog or Ontylog Extension namespace. The superconcept **must** be from the linked Ontylog namespace, or the Ontylog Extension namespace itself. Drop the superconcept into the *Superconcept* field on the *Add Defining Concept* window.



Cutis anserina (finding)
Finding of color of skin (finding)
Finding of integrity of skin (finding)
Impaired skin integrity (finding)
Skin at risk of breakdown (finding)
Unhealthy skin (finding)

Concept Walker

Finding of appearance of skin (finding)

Focus Concept: Finding of integrity of skin (finding) [SNOME...

View Axis: Superconcepts / Subconcepts

Namespace: SNOMED CT

Impaired skin integrity (finding)
Skin at risk of breakdown (finding)
Unhealthy skin (finding)

Finding of sweating (finding)

Chronic Skin Infection
Code: C4
ID: 4
Namespace: SNOMED CT EXTENSION (Ontylog Extension, Local, Editable)
Primitive
Kind: No_Kind

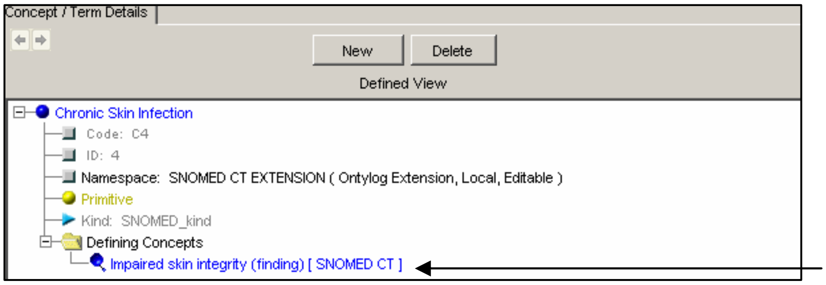
Add Defining Concept

Concept: Chronic Skin Infection [SNOMED CT EXTENSION]

Superconcept: Impaired skin integrity (finding) [SNOMED CT]

The superconcept name, as well as the namespace from which you dragged it, display in the *Superconcept* field.

6. Click **OK**. In the Extension namespace, the superconcept is added as the defining concept of the concept you were editing. If the defining concept is from a namespace that differs from the one in which you are creating the new concept (e.g., the linked Ontylog namespace) that namespace displays in brackets.



Concept / Term Details

Chronic Skin Infection
Code: C4
ID: 4
Namespace: SNOMED CT EXTENSION (Ontylog Extension, Local, Editable)
Primitive
Kind: SNOMED_kind
Defining Concepts
Impaired skin integrity (finding) [SNOMED CT]

Defining Superconcept of Ontylog Extension Concept

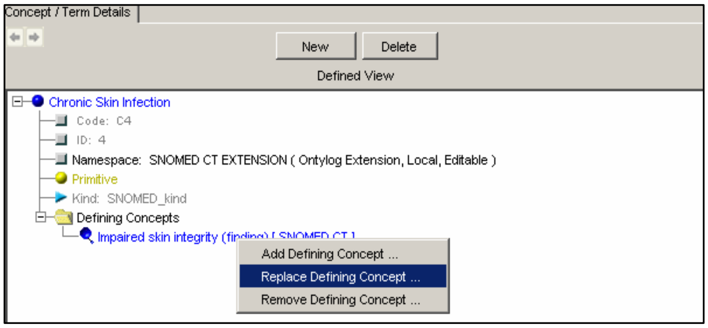
The kind from the superconcept is assigned to the new concept automatically (i.e., the new concept assumes the kind from the superconcept).

Replace a Defining Concept for an Existing Concept

Follow this procedure to replace an Extension namespace concept's defining concept with a different concept.

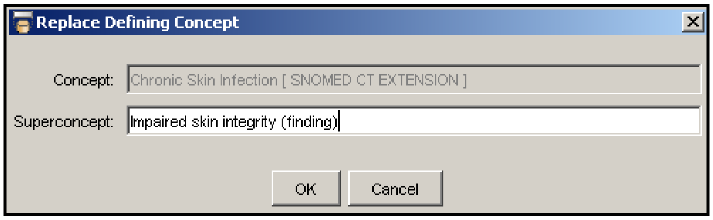
1. Right click on the defining concept (i.e., superconcept) name in the *Concept/Term Details* panel.

2. When the attribute edit menu displays, click **Replace Defining Concept**.



Chronic Skin Infection
Code: C4
ID: 4
Namespace: SNOMED CT EXTENSION (Ontylog Extension, Local, Editable)
Primitive
Kind: SNOMED_kind
Defining Concepts
Impaired skin integrity (finding) [SNOMED CT]

The *Replace Defining Concept* window displays.

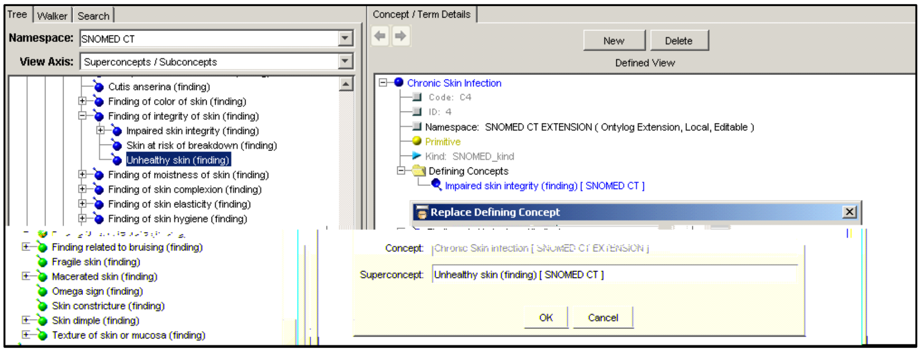


Concept: Chronic Skin Infection [SNOMED CT EXTENSION]
Superconcept: Impaired skin integrity (finding)

Note that the *Concept* field (display only) references the new concept name, as well as the Extension namespace. The *Superconcept* field references the superconcept defined currently.

3. Each concept in an Ontylog namespace must be assigned a **kind**. The superconcept you select as the new defining concept must have the same kind as that assigned to the superconcept you are replacing. To help insure that you select a replacement superconcept with the appropriate kind (i.e., for the concept you are editing to assume) drag the prospective replacement superconcept to a floating *Concept/Term Details* panel, and switch to the defined view to display that concept's kind.

4. From another displayed panel (e.g., *Concept Tree*, *Concept Walker*) drag the replacement superconcept from the linked Ontylog namespace, or the Ontylog Extension namespace itself. Drop the replacement superconcept into the *Superconcept* field on the *Replace Defining Concept* window.



Namespace: SNOMED CT
View Axis: Superconcepts / Subconcepts

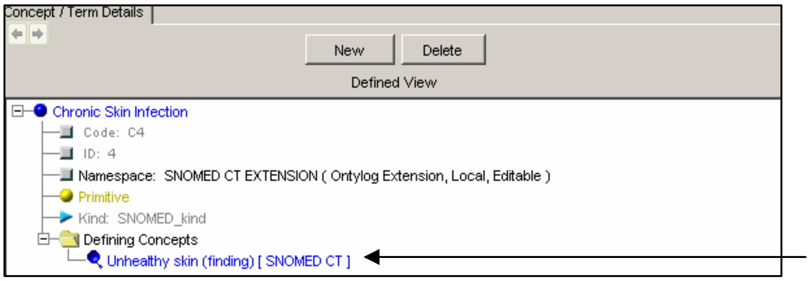
Cutis anserina (finding)
Finding of color of skin (finding)
Finding of integrity of skin (finding)
Impaired skin integrity (finding)
Skin at risk of breakdown (finding)
Unhealthy skin (finding)
Finding of moistness of skin (finding)
Finding of skin complexion (finding)
Finding of skin elasticity (finding)
Finding of skin hygiene (finding)
Finding related to bruising (finding)
Fragile skin (finding)
Macerated skin (finding)
Omega sign (finding)
Skin constricture (finding)
Skin dimple (finding)
Texture of skin or mucosa (finding)

Chronic Skin Infection
Code: C4
ID: 4
Namespace: SNOMED CT EXTENSION (Ontylog Extension, Local, Editable)
Primitive
Kind: SNOMED_kind
Defining Concepts
Impaired skin integrity (finding) [SNOMED CT]

Concept: Chronic Skin Infection [SNOMED CT EXTENSION]
Superconcept: Unhealthy skin (finding) [SNOMED CT]

The replacement superconcept name, as well as the namespace from which you dragged it, display in the *Superconcept* field.

5. Click **OK**. The superconcept you just selected replaces the previous one. If the new defining concept is from a namespace that differs from the one in which the concept you are modifying resides, (e.g., the linked Ontylog namespace) that namespace displays in brackets.



Chronic Skin Infection
Code: C4
ID: 4
Namespace: SNOMED CT EXTENSION (Ontylog Extension, Local, Editable)
Primitive
Kind: SNOMED_kind
Defining Concepts
Unhealthy skin (finding) [SNOMED CT]

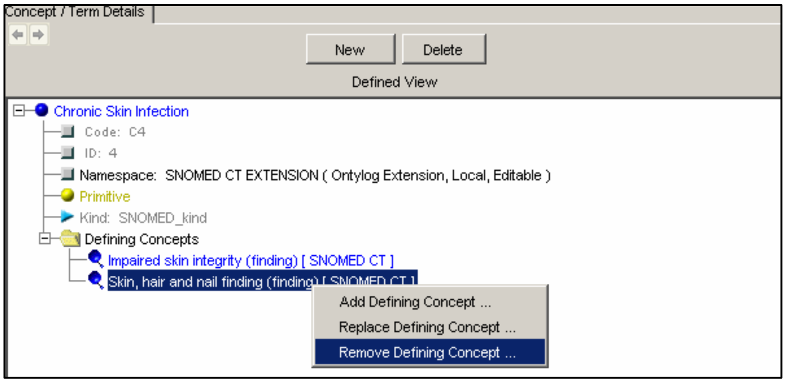
Replaced Defining Superconcept of Ontylog Extension Concept

Remove a Defining Concept from an Existing Concept

Follow this procedure to remove a defining concept from an Extension namespace concept's attributes.

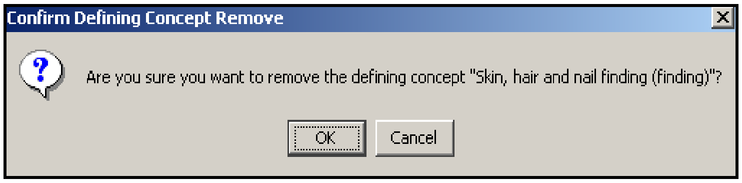
1. Right click the name of the defining concept (i.e., superconcept) you want to remove in the *Concept/Term Details* panel.

2. When the attribute edit menu displays, click **Remove Defining Concept**.



Chronic Skin Infection
Code: C4
ID: 4
Namespace: SNOMED CT EXTENSION (Ontylog Extension, Local, Editable)
Primitive
Kind: SNOMED_kind
Defining Concepts
Impaired skin integrity (finding) [SNOMED CT]
Skin, hair and nail finding (finding) [SNOMED CT]

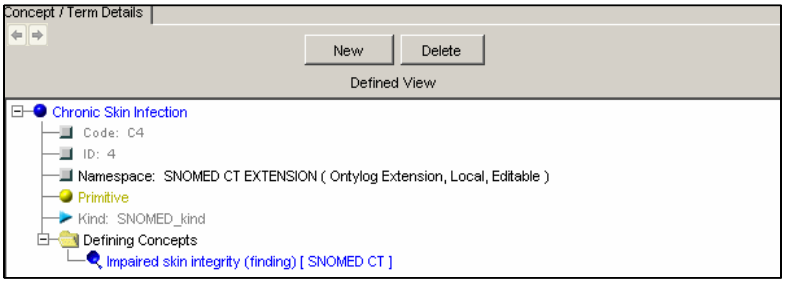
The following confirmation window displays, referencing the superconcept you selected for removal.



Are you sure you want to remove the defining concept "Skin, hair and nail finding (finding)"?

3. Click **OK**. The relationship between the Extension namespace concept and the superconcept is removed immediately. The superconcept is removed immediately from the Extension namespace concept attributes in the *Concept/Term Details* panel.

   Note: The DTS Editor will not allow you to delete a concept's last defining concept if any concept with roles that are associated to that defining concept exists in the Extension namespace.



Chronic Skin Infection
Code: C4
ID: 4
Namespace: SNOMED CT EXTENSION (Ontylog Extension, Local, Editable)
Primitive
Kind: SNOMED_kind
Defining Concepts
Impaired skin integrity (finding) [SNOMED CT]

Add a Defining Role for a New Concept

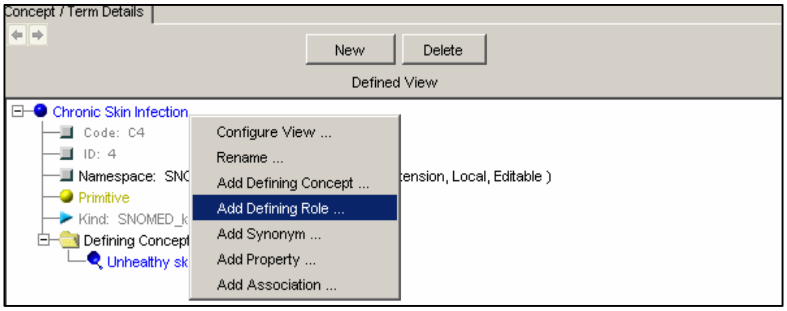
Each **defining role** describes a defining relationship between concepts of specific kinds. Each role is defined by a **Role Type**, as well as a **role value** that is the object concept of the role relationship. The author of the subscription namespace must have created the role types used in Ontylog namespaces; you cannot create role types in DTS.

You can attach one of three logical modifiers, **all**, **some**, or **poss**, to each concept role.

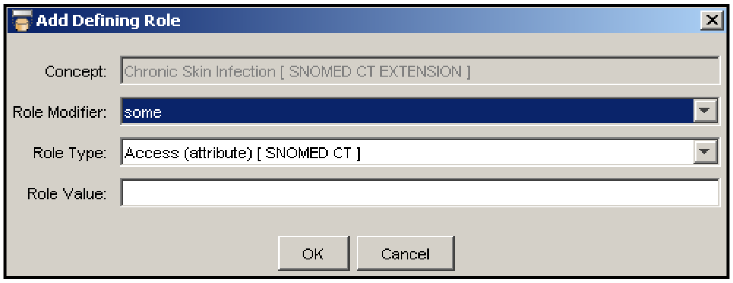
- The **all** modifier states that the relationship exists for **all instances** of the role value concept.
- The **some** modifier states that **at least one instance** of the role value concept has that relationship.
- The **poss** (**Possibly**) modifier states that when the **poss** modifier is encountered during classification, the Modular Classifier ignores that role for determining subsumption; however, the role value still is inherited and completed. At the point that the modifier **all** or **some** is used with the given role, the **poss** version is no longer inherited. Refer to the *Ontylog Editor Users Guide* (included with the Apelon TDE product) for procedures on enabling the **poss** modifier.

You can specify one or more defining roles for a new concept in the Ontylog Extension namespace. Follow this procedure to add a defining role for a concept in the Ontylog Extension namespace.

1. Right click on the concept name in the *Concept/Term Details* panel.
2. When the attribute edit menu displays, click **Add Defining Role**.



The *Add Defining Role* window displays.



Concept: Chronic Skin Infection [SNOMED CT EXTENSION]

Role Modifier: some

Role Type: Access (attribute) [SNOMED CT]

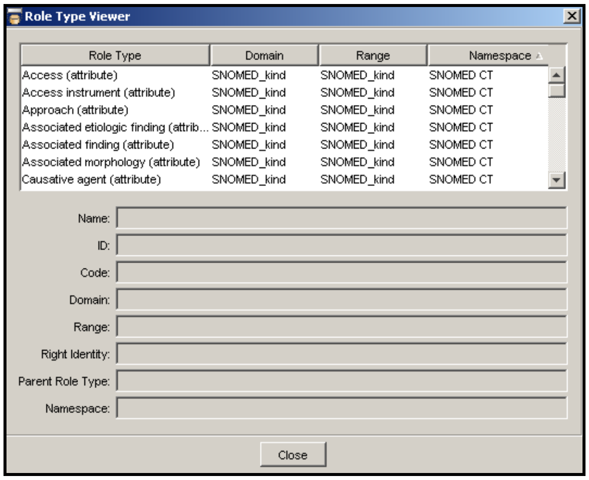
Role Value:

Note that the *Concept* field (display only) references the new concept name, as well as the Ontylog Extension namespace.

3. You must attach one of the three logical modifiers, **all**, **some**, or **poss**, to each role for a concept. For example, **all** can imply that all tests conducted for that concept have a specimen, while **some** (the default) implies that at least one test has a specimen. Select the appropriate role modifier from the *Role Modifier* field pulldown list.

   The concept you select as the role value for the Extension namespace concept **must** be from the linked Ontylog subscription namespace, or from the Extension namespace itself. The role value concept also must be of the **range** kind of the role type chosen. An error window displays if you choose a role value concept of the wrong kind (i.e., one that doesn't match the range kind of the role type).

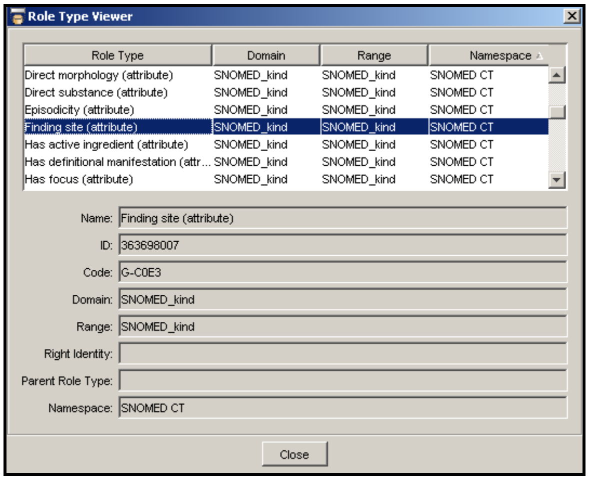
4. To help insure that you select the appropriate role type, a *Role Type Viewer* floating window is available for you to view existing types. Click the **Role Types** option in the *DTS Editor Main* window to display the *Role Types Viewer* floating window. This window lists all **role types** that have been defined within all of the **Ontylog** namespaces in your knowledgebase.


Role Type Viewer

Role Type	Domain	Range	Namespace
Access (attribute)	SNOMED_kind	SNOMED_kind	SNOMED CT
Access instrument (attribute)	SNOMED_kind	SNOMED_kind	SNOMED CT
Approach (attribute)	SNOMED_kind	SNOMED_kind	SNOMED CT
Associated etiologic finding (attrib...	SNOMED_kind	SNOMED_kind	SNOMED CT
Associated finding (attribute)	SNOMED_kind	SNOMED_kind	SNOMED CT
Associated morphology (attribute)	SNOMED_kind	SNOMED_kind	SNOMED CT
Causative agent (attribute)	SNOMED_kind	SNOMED_kind	SNOMED CT

Name:
ID:
Code:
Domain:
Range:
Right Identity:
Parent Role Type:
Namespace:

Modify the listing sort by clicking the desired column header. Click the role type name to view details on that specific role type.


Role Type Viewer

Role Type	Domain	Range	Namespace
Direct morphology (attribute)	SNOMED_kind	SNOMED_kind	SNOMED CT
Direct substance (attribute)	SNOMED_kind	SNOMED_kind	SNOMED CT
Episodicity (attribute)	SNOMED_kind	SNOMED_kind	SNOMED CT
Finding site (attribute)	SNOMED_kind	SNOMED_kind	SNOMED CT
Has active ingredient (attribute)	SNOMED_kind	SNOMED_kind	SNOMED CT
Has definitional manifestation (attr...	SNOMED_kind	SNOMED_kind	SNOMED CT
Has focus (attribute)	SNOMED_kind	SNOMED_kind	SNOMED CT

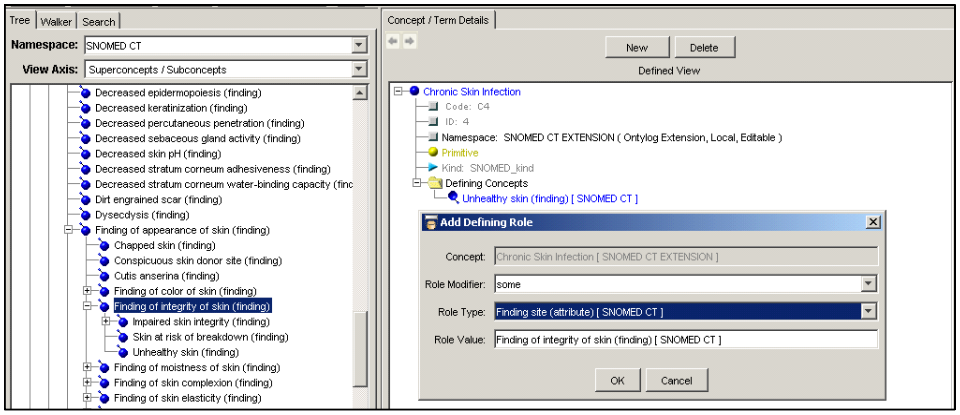
Name: Finding site (attribute)
ID: 363698007
Code: G-C0E3
Domain: SNOMED_kind
Range: SNOMED_kind
Right Identity:
Parent Role Type:
Namespace: SNOMED CT

If the selected role is a **parent** role (established in the Ontylog namespace) the *Parent Role Type* field indicates the type parent role relationship that was established. This parent role designation can affect role subsumption behavior during classification.

The field is blank if the role was not designated a parent role. Refer to the *Ontylog Editor Users Guide* (included with the Apelon TDE product) for procedures on designating a role as a parent role.

5. On the *Add Defining Role* window, the *Role Type* field pulldown list includes all role types from the linked Ontylog subscription namespace with a domain kind that matches the new concept (in the Extension namespace). Select the appropriate role type from the list.

6. From another displayed panel (e.g., *Concept Tree*, *Concept Walker*) drag the concept (from the relevant Ontylog or Ontylog Extension namespace) that represents the role value in the relationship you are establishing, and drop it into the *Role Value* field.



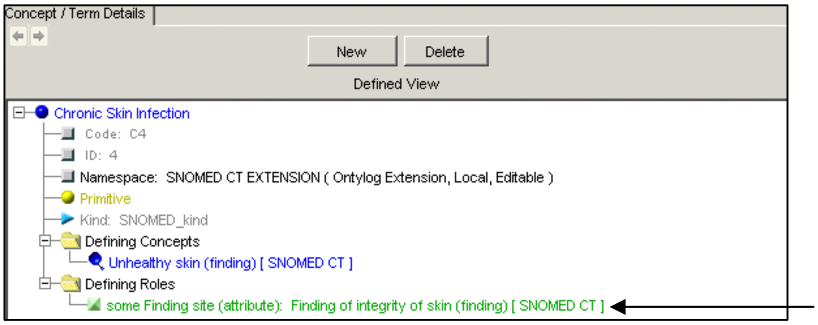
Namespace: SNOMED CT
View Axis: Superconcepts / Subconcepts

Decreased epidermopoiesis (finding)
Decreased keratinization (finding)
Decreased percutaneous penetration (finding)
Decreased sebaceous gland activity (finding)
Decreased skin pH (finding)
Decreased stratum corneum adhesiveness (finding)
Decreased stratum corneum water-binding capacity (finc
Dirt engrained scar (finding)
Dysecdysis (finding)
Finding of appearance of skin (finding)
Chapped skin (finding)
Conspicuous skin donor site (finding)
Cutis anserina (finding)
Finding of color of skin (finding)
Finding of integrity of skin (finding)
Impaired skin integrity (finding)
Skin at risk of breakdown (finding)
Unhealthy skin (finding)
Finding of moistness of skin (finding)
Finding of skin complexion (finding)
Finding of skin elasticity (finding)

Chronic Skin Infection
Code: C4
ID: 4
Namespace: SNOMED CT EXTENSION (Ontylog Extension, Local, Editable)
Primitive
Kind: SNOMED_kind
Defining Concepts
Unhealthy skin (finding) [SNOMED CT]

Concept: Chronic Skin Infection [SNOMED CT EXTENSION]
Role Modifier: some
Role Type: Finding site (attribute) [SNOMED CT]
Role Value: Finding of integrity of skin (finding) [SNOMED CT]

7. Click **OK**. The role is added to the concept in the Extension namespace, and references the chosen concept as the value in the role relationship. If role value concept namespace differs from the defining role concept namespace (e.g., the linked Ontylog namespace), that namespace displays in brackets.



Chronic Skin Infection
Code: C4
ID: 4
Namespace: SNOMED CT EXTENSION (Ontylog Extension, Local, Editable)
Primitive
Kind: SNOMED_kind
Defining Concepts
Unhealthy skin (finding) [SNOMED CT]
Defining Roles
some Finding site (attribute): Finding of integrity of skin (finding) [SNOMED CT]

Defining Role Added, Referencing Chosen Concept As Role Value in the Relationship

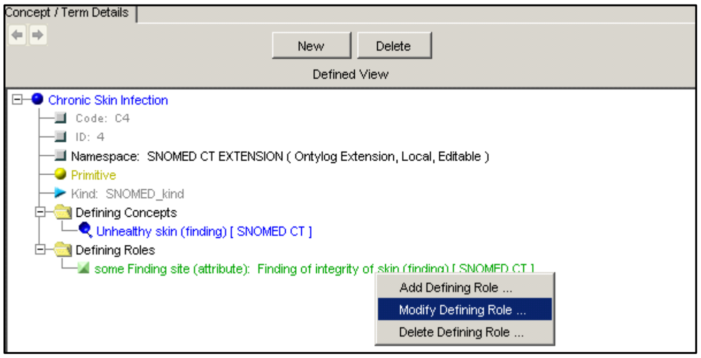
For more on concept roles and relationships, refer to the discussions in the section titled *The Ontylog Language* in the *Ontylog Editor Users Guide*, which is included with the TDE product.

Modify a Defining Role for an Existing Concept

Follow this procedure to modify a defining role for an Extension namespace concept.

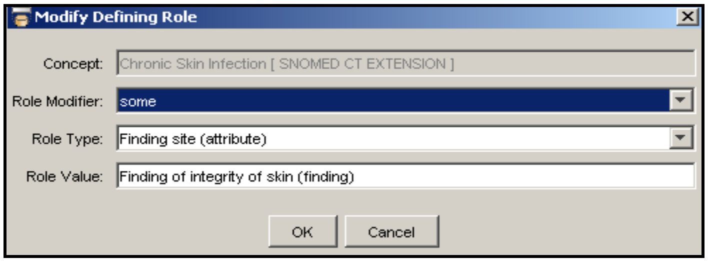
1. Right click on the established defining role in the *Concept/Term Details* panel.

2. When the attribute edit menu displays, click **Modify Defining Role**.

   Chronic Skin Infection
   Code: C4
   ID: 4
   Namespace: SNOMED CT EXTENSION (Ontylog Extension, Local, Editable)
   Primitive
   Kind: SNOMED_kind
   Defining Concepts
   Unhealthy skin (finding) [SNOMED CT]
   Defining Roles
   some Finding site (attribute): Finding of integrity of skin (finding) [SNOMED CT]

   The *Modify Defining Role* window displays.

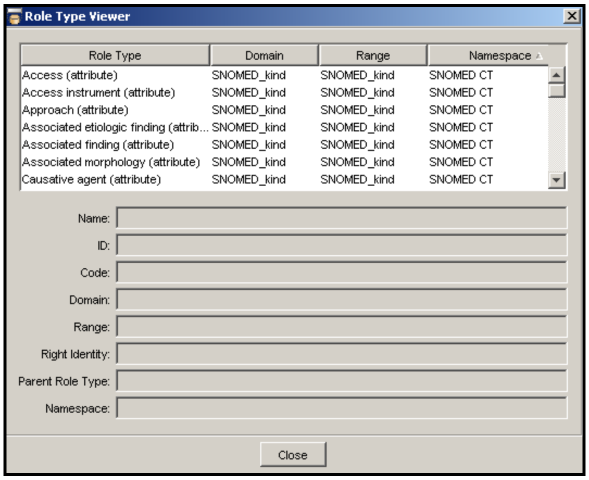
   Concept: Chronic Skin Infection [SNOMED CT EXTENSION]
   Role Modifier: some
   Role Type: Finding site (attribute)
   Role Value: Finding of integrity of skin (finding)

   Note that the *Concept* field (display only) references the new concept name, as well as the Extension namespace. The other fields reference the role information established previously for the concept.

3. To change the logical modifier for the role, select the appropriate modifier (**all** or **some**) from the *Role Modifier* field pulldown list. If this is the only change to the defining role, click **OK** at this point to update the role modifier for the concept.

4. The concept you select as the replacement role value for the Extension namespace **must** be from the linked Ontylog subscription namespace, or from the Ontylog Extension namespace itself. It also must be of the same kind as the range kind *Role Type* you selected.

   To help insure that you select the appropriate role type, a *Role Type Viewer* floating window is available for you to view existing types. Click the **Role Types** option in the *DTS Editor Main* window to display the *Role Types Viewer* floating window. This window lists all **role types** that have been defined within all of the **Ontylog** namespaces in your knowledgebase.


Role Type Viewer

Role Type	Domain	Range	Namespace
Access (attribute)	SNOMED_kind	SNOMED_kind	SNOMED CT
Access instrument (attribute)	SNOMED_kind	SNOMED_kind	SNOMED CT
Approach (attribute)	SNOMED_kind	SNOMED_kind	SNOMED CT
Associated etiologic finding (attrib...	SNOMED_kind	SNOMED_kind	SNOMED CT
Associated finding (attribute)	SNOMED_kind	SNOMED_kind	SNOMED CT
Associated morphology (attribute)	SNOMED_kind	SNOMED_kind	SNOMED CT
Causative agent (attribute)	SNOMED_kind	SNOMED_kind	SNOMED CT

Name:

ID:

Code:

Domain:

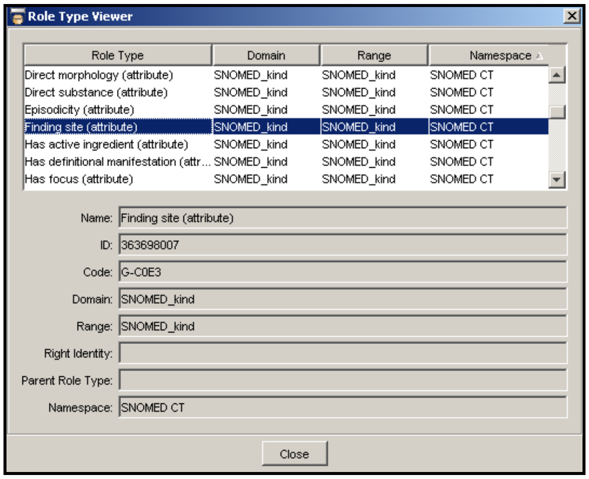
Range:

Right Identity:

Parent Role Type:

Namespace:

Modify the listing sort by clicking the desired column header. Click the role type name to view details on that specific role type.


Role Type Viewer

Role Type	Domain	Range	Namespace
Direct morphology (attribute)	SNOMED_kind	SNOMED_kind	SNOMED CT
Direct substance (attribute)	SNOMED_kind	SNOMED_kind	SNOMED CT
Episodicity (attribute)	SNOMED_kind	SNOMED_kind	SNOMED CT
Finding site (attribute)	SNOMED_kind	SNOMED_kind	SNOMED CT
Has active ingredient (attribute)	SNOMED_kind	SNOMED_kind	SNOMED CT
Has definitional manifestation (attr...	SNOMED_kind	SNOMED_kind	SNOMED CT
Has focus (attribute)	SNOMED_kind	SNOMED_kind	SNOMED CT

Name: Finding site (attribute)

ID: 363698007

Code: G-C0E3

Domain: SNOMED_kind

Range: SNOMED_kind

Right Identity:

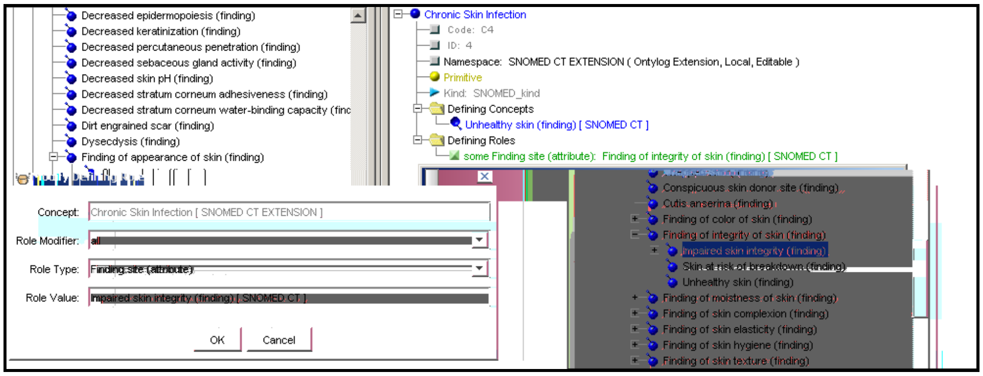
Parent Role Type:

Namespace: SNOMED CT

5. The *Role Type* field pulldown list includes all role types from the linked Ontylog subscription namespace with a domain kind that matches the concept being defined in the Extension namespace. Select an alternate role type from the list, as appropriate.

6. From another displayed panel (e.g., *Concept Tree*, *Concept Walker*) drag the concept that represents the role value in the modified relationship you are establishing, and drop it into the *Role Value* field. The concept you select as the role value **must** be from the linked Ontylog subscription namespace, or from the Ontylog Extension namespace itself. It also must be of the same kind as the range kind *Role Type* you selected.

   In the following illustration, the *Role Modifier* and *Role Value* are modified for the defining role.



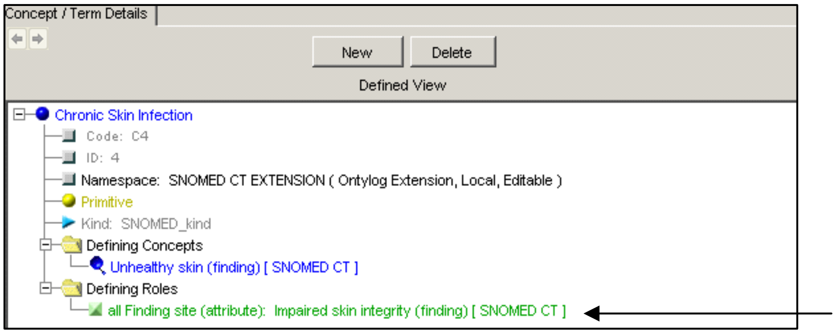
Decreased epidermopoiesis (finding)
Decreased keratinization (finding)
Decreased percutaneous penetration (finding)
Decreased sebaceous gland activity (finding)
Decreased skin pH (finding)
Decreased stratum corneum adhesiveness (finding)
Decreased stratum corneum water-binding capacity (finc
Dirt engrained scar (finding)
Dysecdysis (finding)
Finding of appearance of skin (finding)

Chronic Skin Infection
Code: C4
ID: 4
Namespace: SNOMED CT EXTENSION (Ontylog Extension, Local, Editable)
Primitive
Kind: SNOMED_kind
Defining Concepts
Unhealthy skin (finding) [SNOMED CT]
Defining Roles
some Finding site (attribute): Finding of integrity of skin (finding) [SNOMED CT]

Concept: Chronic Skin Infection [SNOMED CT EXTENSION]
Role Modifier: all
Role Type: Finding site (attribute)
Role Value: Impaired skin integrity (finding) [SNOMED CT]

Conspicuous skin donor site (finding)
Cutis anserina (finding)
Finding of color of skin (finding)
Finding of integrity of skin (finding)
Impaired skin integrity (finding)
Skin at risk of breakdown (finding)
Unhealthy skin (finding)
Finding of moistness of skin (finding)
Finding of skin complexion (finding)
Finding of skin elasticity (finding)
Finding of skin hygiene (finding)
Finding of skin texture (finding)

7. Click **OK**. The modifications to the defining role are updated for the concept in the Extension namespace, and are reflected in the *Concept/Term Details* panel. If the replacement role value concept you chose is from a namespace that differs from the one in which the concept for which you are replacing a defining role resides (e.g., the linked Ontylog namespace) that namespace displays in brackets.



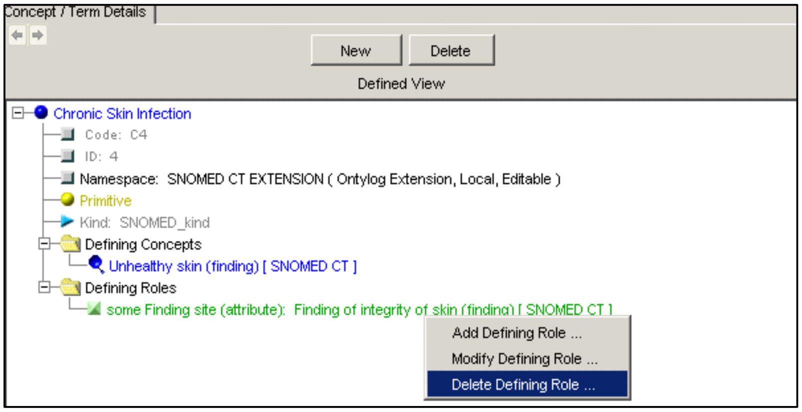
Chronic Skin Infection
Code: C4
ID: 4
Namespace: SNOMED CT EXTENSION (Ontylog Extension, Local, Editable)
Primitive
Kind: SNOMED_kind
Defining Concepts
Unhealthy skin (finding) [SNOMED CT]
Defining Roles
all Finding site (attribute): Impaired skin integrity (finding) [SNOMED CT]

Role Modifier and Role Value are Changed

Delete a Defining Role for an Existing Concept

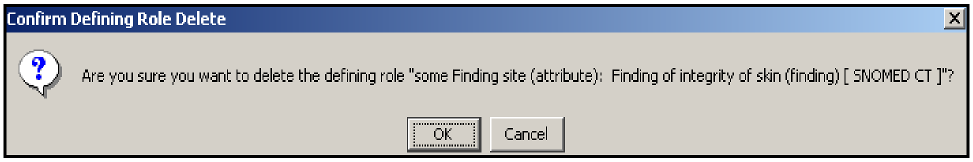
Follow this procedure to delete a defining role for an Extension namespace concept.

1. Right click on the established defining role in the *Concept/Term Details* panel.
2. When the attribute edit menu displays, click **Delete Defining Role**.



Chronic Skin Infection
Code: C4
ID: 4
Namespace: SNOMED CT EXTENSION (Ontylog Extension, Local, Editable)
Primitive
Kind: SNOMED_kind
Defining Concepts
Unhealthy skin (finding) [SNOMED CT]
Defining Roles
some Finding site (attribute): Finding of integrity of skin (finding) [SNOMED CT]

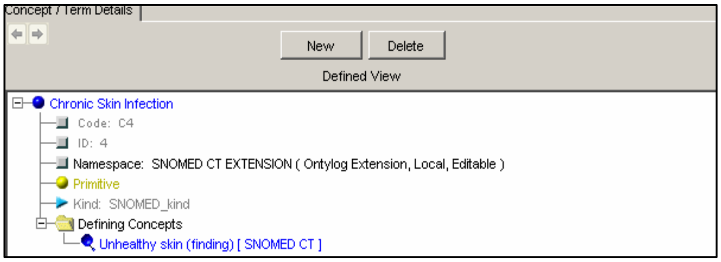
The following confirmation window displays, referencing the defining role you selected for deletion.



Confirm Defining Role Delete

Are you sure you want to delete the defining role "some Finding site (attribute): Finding of integrity of skin (finding) [SNOMED CT]"?

3. Click **OK**. The role is removed immediately from the *Concept/Term Details* panel.

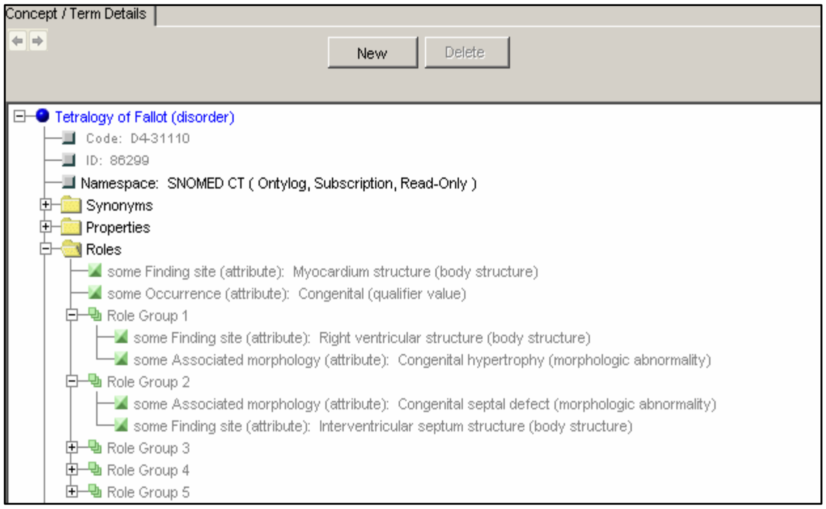


```
Chronic Skin Infection
  Code: C4
  ID: 4
  Namespace: SNOMED CT EXTENSION ( Ontylog Extension, Local, Editable )
  Primitive
  Kind: SNOMED_kind
  Defining Concepts
    Unhealthy skin (finding) [ SNOMED CT ]
```

Group Concept Roles

As discussed earlier, a **defining role** describes a defining relationship between concepts of specific kinds. Each role is defined by a **Role Type** and a **role value** that is the object concept of the role relationship.

A **role group**, in turn, describes a higher-level relationship between two or more established roles that is required to make each role fully meaningful (i.e., each role by itself would be incomplete as a concept attribute). The definition of the concept (i.e., in terms of role definition) is incomplete without this identification of the relationship between the roles, defined by the role group. Note the two expanded role groups (**Role Group 1**, **Role Group 2**) in the following illustration, which reflects a concept from an Ontylog subscription namespace in the Inferred view.



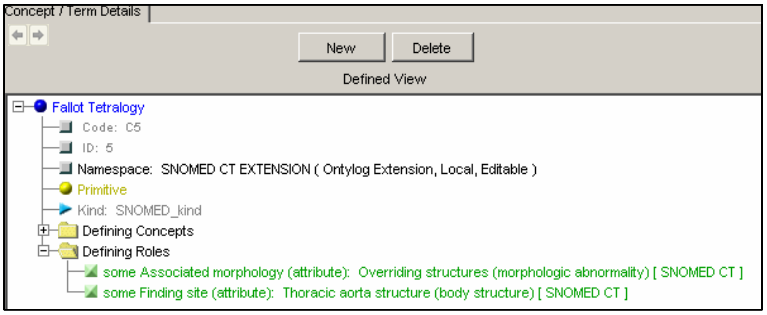
```
Tetralogy of Fallot (disorder)
  Code: D4-31110
  ID: 86299
  Namespace: SNOMED CT ( Ontylog, Subscription, Read-Only )
  Synonyms
  Properties
  Roles
    some Finding site (attribute): Myocardium structure (body structure)
    some Occurrence (attribute): Congenital (qualifier value)
    Role Group 1
      some Finding site (attribute): Right ventricular structure (body structure)
      some Associated morphology (attribute): Congenital hypertrophy (morphologic abnormality)
    Role Group 2
      some Associated morphology (attribute): Congenital septal defect (morphologic abnormality)
      some Finding site (attribute): Interventricular septum structure (body structure)
    Role Group 3
    Role Group 4
    Role Group 5
```

Each of the two roles in **Role Group 1** defines a relationship between concepts of different kinds. Each role, however, is incomplete as a stand-alone. It takes the combination of the two roles in a group in order to make each role meaningful as a concept attribute (i.e., one role type is not meaningful without the other).

In the example, the role type **Finding site** with the object concept **Right ventricular structure** is not fully meaningful unless it is grouped with the role type **Associated morphology**, with the object concept **Congenital hypertrophy**.

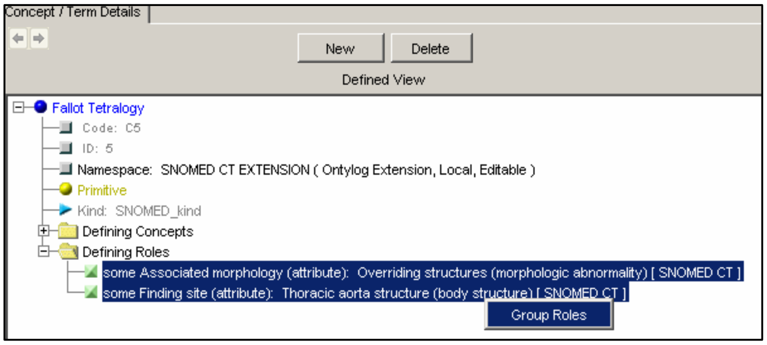
Follow this procedure to create a role group (the illustrations reflect role groups for a concept in an Extension namespace).

1. Make sure the concept for which you want to group roles is displayed in the *Concept/Term Details* panel in the defined view.
2. Highlight the roles you want to group together. To select two or more nonadjacent roles, click one role, then hold down **CTRL** and click each additional role; each role you select is highlighted. To select adjacent roles to group, click the first role in the sequence, then hold down **SHIFT** and click the last role in the sequence. All the roles in the sequence you select are highlighted.



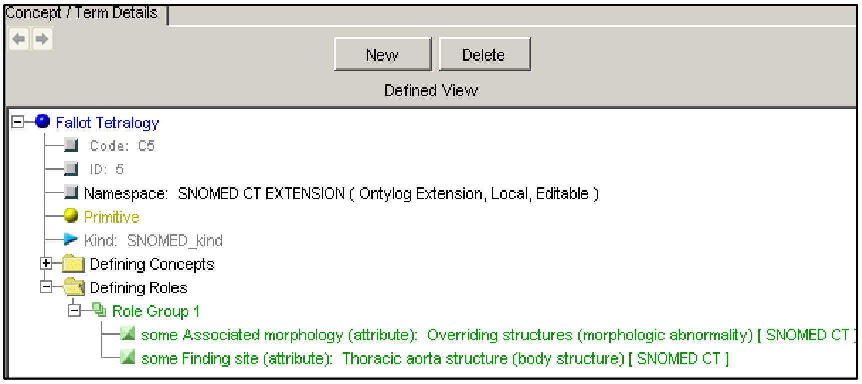
Fallot Tetralogy
Code: C5
ID: 5
Namespace: SNOMED CT EXTENSION (Ontylog Extension, Local, Editable)
Primitive
Kind: SNOMED_kind
Defining Concepts
Defining Roles
some Associated morphology (attribute): Overriding structures (morphologic abnormality) [SNOMED CT]
some Finding site (attribute): Thoracic aorta structure (body structure) [SNOMED CT]

3. After you select the roles to be grouped, right-click in the highlighted section. The **Group Roles** option displays.



Fallot Tetralogy
Code: C5
ID: 5
Namespace: SNOMED CT EXTENSION (Ontylog Extension, Local, Editable)
Primitive
Kind: SNOMED_kind
Defining Concepts
Defining Roles
some Associated morphology (attribute): Overriding structures (morphologic abnormality) [SNOMED CT]
some Finding site (attribute): Thoracic aorta structure (body structure) [SNOMED CT]

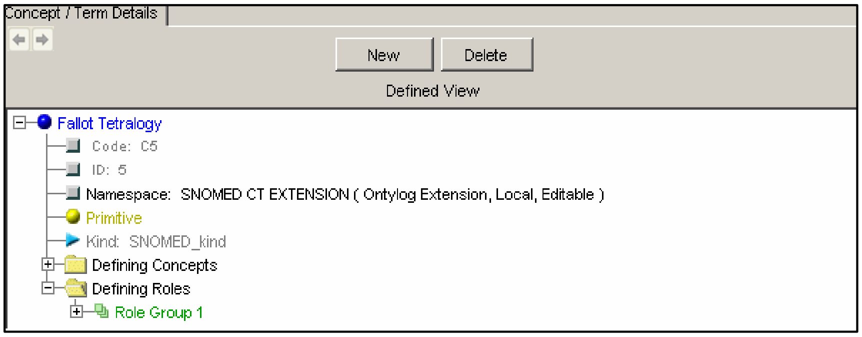
4. Click **Group Roles**. The roles you selected are combined into a role group, identified by a role group heading (**Role Group 1** in this case). The DTS Editor assigns names to the role groups; you cannot change role group names.



Fallot Tetralogy
- Code: C5
- ID: 5
- Namespace: SNOMED CT EXTENSION (Ontylog Extension, Local, Editable)
- Primitive
- Kind: SNOMED_kind
- Defining Concepts
- Defining Roles
  - Role Group 1
    - some Associated morphology (attribute): Overriding structures (morphologic abnormality) [SNOMED CT]
    - some Finding site (attribute): Thoracic aorta structure (body structure) [SNOMED CT]

Note that the role group is expanded for display as the default.

5. Click the **Collapse** button adjacent to the role group heading to collapse all roles in the group.



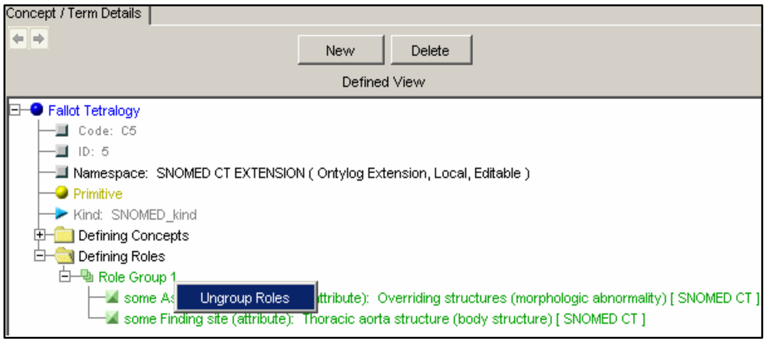
Fallot Tetralogy
- Code: C5
- ID: 5
- Namespace: SNOMED CT EXTENSION (Ontylog Extension, Local, Editable)
- Primitive
- Kind: SNOMED_kind
- Defining Concepts
- Defining Roles
  - Role Group 1

If at a later time the role group is no longer valid, you can ungroup the roles to return them to their unassociated state. Note that a role group must consist of two or more roles. If you delete a role in a group that consists of two roles, the remaining role is ungrouped automatically.

Ungroup Concept Roles

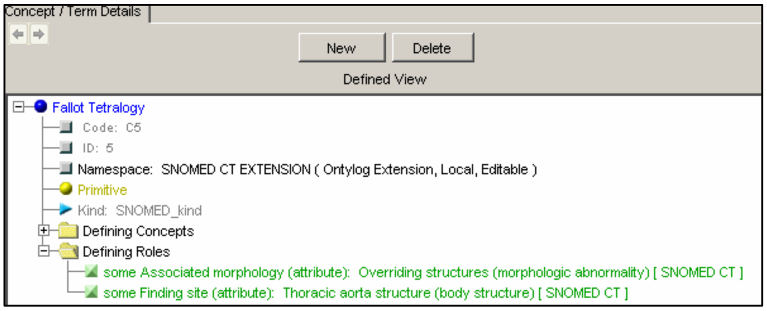
1. Make sure the concept for which you want to ungroup roles is displayed in the *Concept/Term Details* panel in the defined view.

2. Right-click the role group heading; it does not matter if the role group is expanded for view or not. The **Ungroup Roles** option displays.



Fallot Tetralogy
Code: C5
ID: 5
Namespace: SNOMED CT EXTENSION (Ontylog Extension, Local, Editable)
Primitive
Kind: SNOMED_kind
Defining Concepts
Defining Roles
Role Group 1
some As ttribute): Overriding structures (morphologic abnormality) [SNOMED CT]
some Finding site (attribute): Thoracic aorta structure (body structure) [SNOMED CT]

3. Click **Ungroup Roles**. The role group heading is removed, indicating the roles have been ungrouped and returned to their unassociated state.



Fallot Tetralogy
Code: C5
ID: 5
Namespace: SNOMED CT EXTENSION (Ontylog Extension, Local, Editable)
Primitive
Kind: SNOMED_kind
Defining Concepts
Defining Roles
some Associated morphology (attribute): Overriding structures (morphologic abnormality) [SNOMED CT]
some Finding site (attribute): Thoracic aorta structure (body structure) [SNOMED CT]

Classify an Ontylog Extension Namespace

You must **classify** an Ontylog Extension namespace in order for changes to that namespace (i.e., new local content that extends the linked Ontylog subscription namespace) to be reflected in the Extension namespace's inferred view. Classification updates the inferred information for an Extension namespace.

The inferred Extension namespace view will **NOT** reflect the following concept edit types if you don't classify the Extension namespace.

* Adding a concept
* Adding or editing a role
* Modifying a kind
* Replacing a defining concept (i.e., superconcept) with another concept

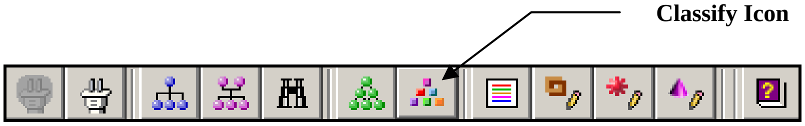
> Classification of the Extension namespace is accomplished through a tool called the **Modular Classifier**, which is installed as part of the DTS installation. Additional Modular Classifier setups also are required before you can classify an Extension namespace. Refer to the *Modular Classifier Installation and Setup* discussions earlier in the guide for installation and setup procedures.

Perform the following procedure to classify the Extension namespace.

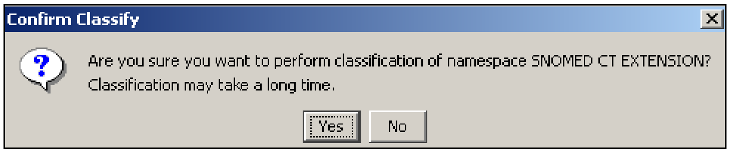
1. Confirm that your Web server (e.g., Tomcat) is running on your machine, or on the machine on which the namespace you want to classify is located.

2. In the DTS Editor, insure that the current local namespace is the Ontylog Extension namespace you want to classify (refer to the *Current Local Namespace* discussion in the *DTS Editor Users Guide*). The current local namespace always displays in the **Status Bar**.

3. Select **Classify** from the **Tools** menu, or click the **Classify** icon in the *DTS Editor Main* window toolbar. These **Classify** options are enabled only if the current local namespace is an **Ontylog Extension** type.



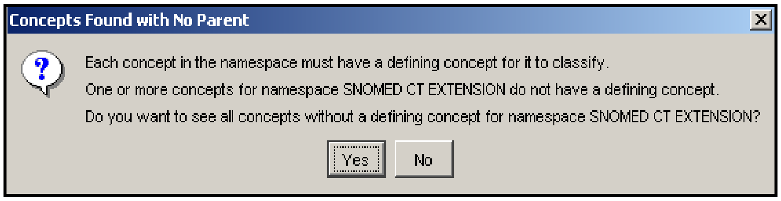
If no changes were made to the Extension namespace that require classification, a message displays indicating that the namespace's classification is current. If changes occurred that require classification, a window similar to the following displays.



Are you sure you want to perform classification of namespace SNOMED CT EXTENSION?
Classification may take a long time.

4. Click **No** to bypass the classification process. Click **Yes** to proceed.

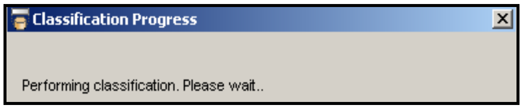
   The Modular Classifier verifies that each concept in the Extension namespace you are classifying has a valid defining concept (each concept in the Extension namespace derives its kind automatically from the defining concept in the Ontylog namespace). If one or more concepts are found with no defining concept, the following window displays.



Each concept in the namespace must have a defining concept for it to classify.
One or more concepts for namespace SNOMED CT EXTENSION do not have a defining concept.
Do you want to see all concepts without a defining concept for namespace SNOMED CT EXTENSION?

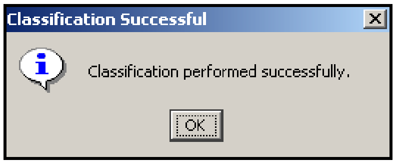
   Click **Yes** to display the *Classification Error* window, where you can view all concepts that prevented successful classification. Other error situations can exist that may prevent successful classification. Error windows with messages specific to those situations provide you with the option to view these errors. Refer to the *Classification Errors* discussions later in this section.

   If the Classifier encounters no error situations, the following window displays indicating classification is in progress.



Performing classification. Please wait..

5. If classification completes successfully, a window displays indicating this.



Classification performed successfully.

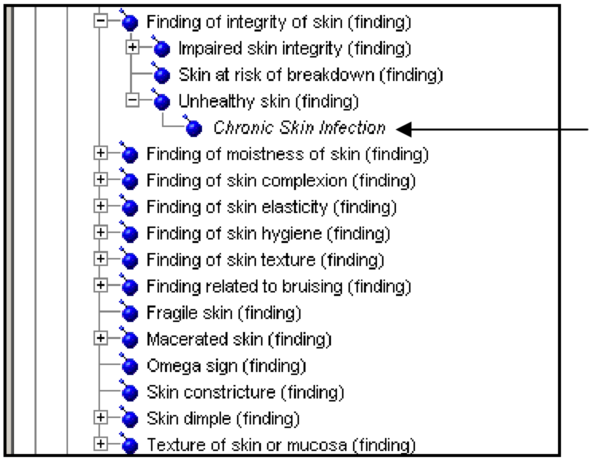
   Click **OK** to acknowledge successful completion.

   The *Concept Tree*, *Concept Walker*, and the inferred view on the *Concept/Term Details* panels are refreshed to reflect the edits resulting from classification.

Concept Tree View and Ontylog Extension Namespaces

This discussion of the *Concept Tree* panel is specific to views that are available for an Ontylog Extension namespace after that namespace is classified. For procedures on the basic use of the *Concept Tree* panel, refer to the *Concept Tree Display Preferences* discussions in the *DTS Editor Users Guide*.

If you open the *Concept Tree* panel after successful classification of an Extension namespace, the displayed hierarchy for that Extension namespace reflects both the linked Ontylog subscription namespace concepts, **and** concepts from the Extension namespace. The Extension namespace does not display as a stand-alone hierarchy. Rather, the Extension namespace concepts (i.e., those created to extend the subscription namespace) display in italics to distinguish them in the hierarchy from Ontylog subscription namespace concepts.

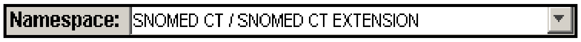


Finding of integrity of skin (finding)
- Impaired skin integrity (finding)
- Skin at risk of breakdown (finding)
- Unhealthy skin (finding)
  - *Chronic Skin Infection*

Finding of moistness of skin (finding)
Finding of skin complexion (finding)
Finding of skin elasticity (finding)
Finding of skin hygiene (finding)
Finding of skin texture (finding)
Finding related to bruising (finding)
Fragile skin (finding)
Macerated skin (finding)
Omega sign (finding)
Skin constricture (finding)
Skin dimple (finding)
Texture of skin or mucosa (finding)

Concept Added to SNOMED CT EXTENSION Namespace, Which Extends SNOMED CT Subscription Namespace

When you select an **Ontylog Extension** namespace from the *Namespace* field dropdown list, the *Namespace* field reflects both the linked Ontylog subscription namespace (e.g., **SNOMED CT**) and the Extension namespace (e.g., **SNOMED CT EXTENSION**) in the format **SNOMED CT / SNOMED CT EXTENSION**.

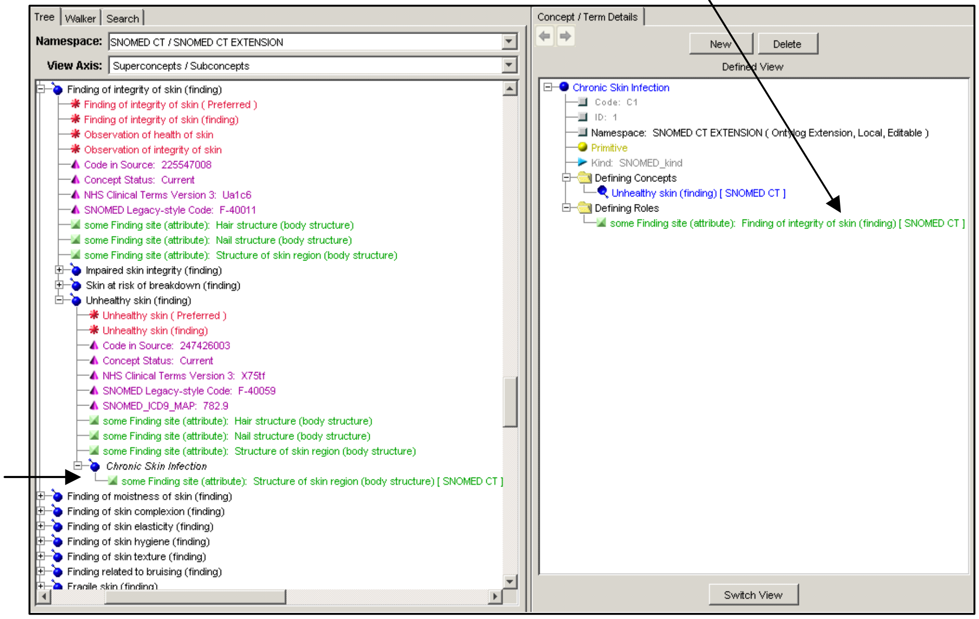


Namespace: SNOMED CT / SNOMED CT EXTENSION

All options for configuring the *Concept Tree* panel are enabled while viewing an Extension namespace. Refer to the *Concept Tree Panel Display Preferences* discussions in the *DTS Editor Users Guide* for configuration options.

Classification of the Extension namespace produces the namespace's inferred view in the *Concept Tree* panel. If you select the *Concept Tree* panel's Inline view for the concept, the Extension concept's **inferred** relationships are referenced. Note the illustration.

Defined Role Relationship



Namespace: SNOMED CT / SNOMED CT EXTENSION

View Axis: Superconcepts / Subconcepts

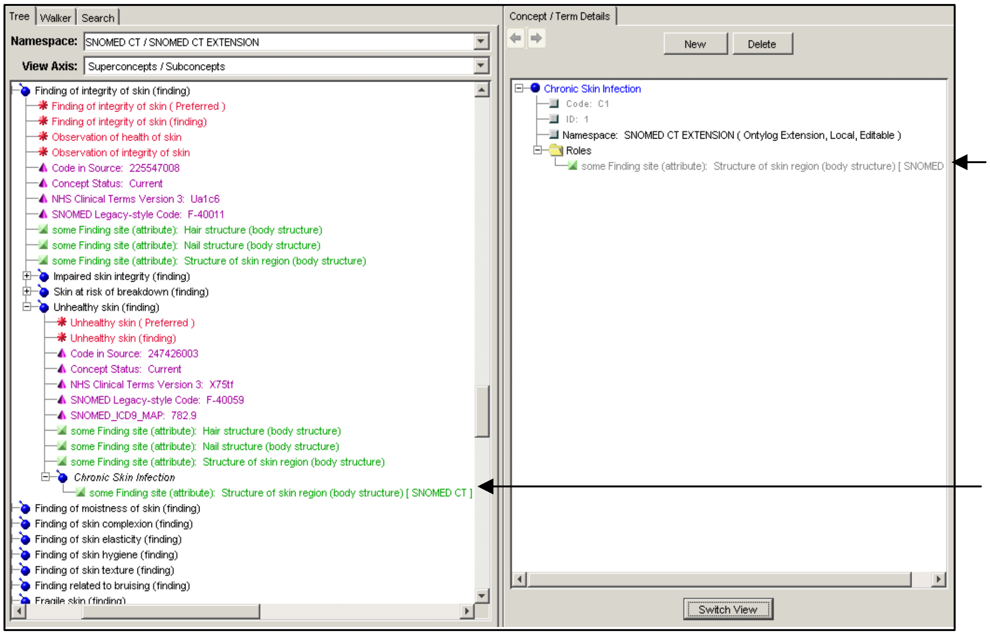
Finding of integrity of skin (finding)
- Finding of integrity of skin (Preferred)
- Finding of integrity of skin (finding)
- Observation of health of skin
- Observation of integrity of skin
- Code in Source: 225547008
- Concept Status: Current
- NHS Clinical Terms Version 3: Ua1c6
- SNOMED Legacy-style Code: F-40011
- some Finding site (attribute): Hair structure (body structure)
- some Finding site (attribute): Nail structure (body structure)
- some Finding site (attribute): Structure of skin region (body structure)
- Impaired skin integrity (finding)
- Skin at risk of breakdown (finding)
- Unhealthy skin (finding)
  - Unhealthy skin (Preferred)
  - Unhealthy skin (finding)
  - Code in Source: 247426003
  - Concept Status: Current
  - NHS Clinical Terms Version 3: X75tf
  - SNOMED Legacy-style Code: F-40059
  - SNOMED_ICD9_MAP: 782.9
  - some Finding site (attribute): Hair structure (body structure)
  - some Finding site (attribute): Nail structure (body structure)
  - some Finding site (attribute): Structure of skin region (body structure)
  - *Chronic Skin Infection*
    - some Finding site (attribute): Structure of skin region (body structure) [SNOMED CT]
- Finding of moistness of skin (finding)
- Finding of skin complexion (finding)
- Finding of skin elasticity (finding)
- Finding of skin hygiene (finding)
- Finding of skin texture (finding)
- Finding related to bruising (finding)
- Fragile skin (finding)

Defined View

Chronic Skin Infection
- Code: C1
- ID: 1
- Namespace: SNOMED CT EXTENSION (Ontylog Extension, Local, Editable)
- Primitive
- Kind: SNOMED_kind
- Defining Concepts
  - Unhealthy skin (finding) [SNOMED CT]
- Defining Roles
  - some Finding site (attribute): Finding of integrity of skin (finding) [SNOMED CT]

Inferred Role Relationship

The concept's defined view of the role relationship is listed in the *Concept/Term Details* panel. Click **Switch View** in the *Concept/Term Details* panel to display the inferred view for the specific concept.



Namespace: SNOMED CT / SNOMED CT EXTENSION

View Axis: Superconcepts / Subconcepts

Finding of integrity of skin (finding)
- Finding of integrity of skin (Preferred)
- Finding of integrity of skin (finding)
- Observation of health of skin
- Observation of integrity of skin
- Code in Source: 225547008
- Concept Status: Current
- NHS Clinical Terms Version 3: Ua1c6
- SNOMED Legacy-style Code: F-40011
- some Finding site (attribute): Hair structure (body structure)
- some Finding site (attribute): Nail structure (body structure)
- some Finding site (attribute): Structure of skin region (body structure)
- Impaired skin integrity (finding)
- Skin at risk of breakdown (finding)
- Unhealthy skin (finding)
  - Unhealthy skin (Preferred)
  - Unhealthy skin (finding)
  - Code in Source: 247426003
  - Concept Status: Current
  - NHS Clinical Terms Version 3: X75tf
  - SNOMED Legacy-style Code: F-40059
  - SNOMED_ICD9_MAP: 782.9
  - some Finding site (attribute): Hair structure (body structure)
  - some Finding site (attribute): Nail structure (body structure)
  - some Finding site (attribute): Structure of skin region (body structure)
  - *Chronic Skin Infection*
    - some Finding site (attribute): Structure of skin region (body structure) [SNOMED CT]
- Finding of moistness of skin (finding)
- Finding of skin complexion (finding)
- Finding of skin elasticity (finding)
- Finding of skin hygiene (finding)
- Finding of skin texture (finding)
- Finding related to bruising (finding)
- Fragile skin (finding)

Chronic Skin Infection
- Code: C1
- ID: 1
- Namespace: SNOMED CT EXTENSION (Ontylog Extension, Local, Editable)
- Roles
  - some Finding site (attribute): Structure of skin region (body structure) [SNOMED

In Inferred View, Role Relationship Matches Inferred Relationship in *Concept Tree* Panel

Role Relationship Matches Inferred Relationship in *Concept/Term Details* Panel

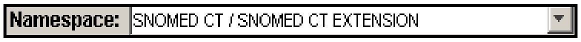
Concept Walker View and Ontylog Extension Namespaces

This discussion of the *Concept Walker* panel is specific to views that are available for an Ontylog Extension namespace after that namespace is classified. For procedures on the basic use of the *Concept Walker* panel, refer to the *Concept Walker View* discussions in the *DTS Editor Users Guide*.

If you open the *Concept Walker* panel after successful classification of an Extension namespace, the displayed hierarchy for a focus concept in that namespace reflects both the linked Ontylog subscription namespace concepts, **and** concepts from the Extension namespace. The Extension namespace does not display as a stand-alone hierarchy. Rather, the Extension namespace concepts (i.e., those created to extend the subscription namespace) display in italics to distinguish them in the hierarchy from Ontylog subscription namespace concepts.

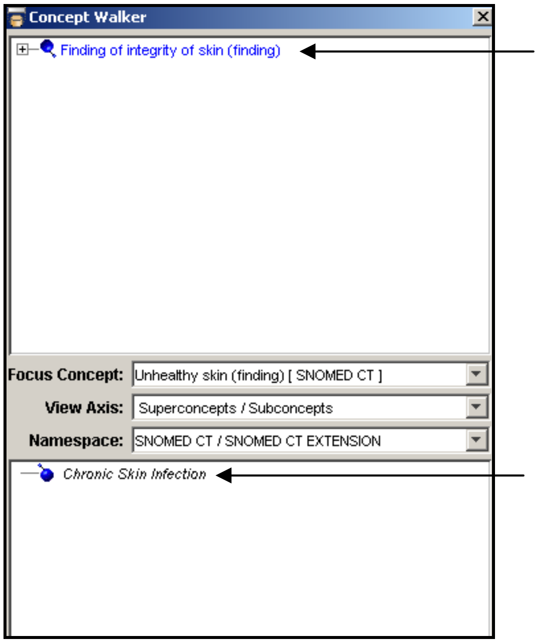
Focus Concept from an Ontylog Extension Namespace

When you drop a concept from an **Ontylog Extension** namespace into the *Focus Concept* field, the *Namespace* field reflects both the linked Ontylog subscription namespace (e.g., **SNOMED CT**) and the Extension namespace (e.g., **SNOMED CT EXTENSION**) in the format **SNOMED CT / SNOMED CT EXTENSION**.



Namespace: SNOMED CT / SNOMED CT EXTENSION

The *Concept Walker* panel view for the focus concept is the linked Ontylog subscription namespace concept hierarchy, with Extension namespace concepts highlighted in italics.



Finding of integrity of skin (finding)

Focus Concept: Unhealthy skin (finding) [SNOMED CT]

View Axis: Superconcepts / Subconcepts

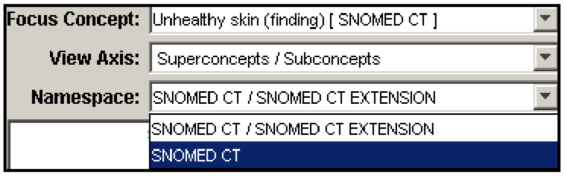
Namespace: SNOMED CT / SNOMED CT EXTENSION

Chronic Skin Infection

Concept From Ontylog Subscription Namespace

Concepts From Extension Namespace, in *Italics*

You can change the view in the *Concept Walker* panel to reflect the hierarchy from the linked Ontylog subscription namespace. From the *Namespace* field pulldown list, click the subscription namespace (**SNOMED CT** in the illustration).


Focus Concept: Unhealthy skin (finding) [SNOMED CT]

View Axis: Superconcepts / Subconcepts

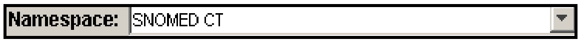
Namespace: SNOMED CT / SNOMED CT EXTENSION

SNOMED CT / SNOMED CT EXTENSION

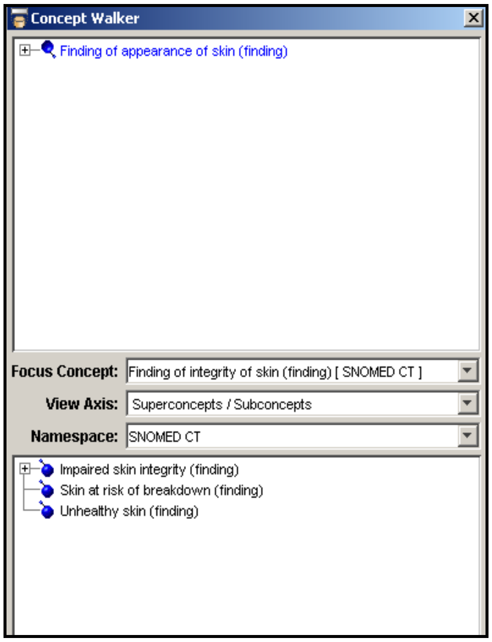
SNOMED CT

Focus Concept from an Ontylog Subscription Namespace

When you drop a concept from an **Ontylog subscription namespace** (e.g., **SNOMED**) into the *Focus Concept* field, the *Namespace* field reflects the linked Ontylog subscription namespace only (e.g., **SNOMED CT**).


Namespace: SNOMED CT

The *Concept Walker* panel view for the focus concept reflects the Ontylog subscription namespace concept hierarchy.



Finding of appearance of skin (finding)

Focus Concept: Finding of integrity of skin (finding) [SNOMED CT]

View Axis: Superconcepts / Subconcepts

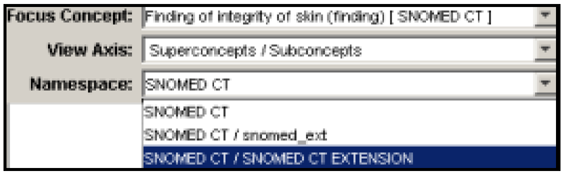
Namespace: SNOMED CT

Impaired skin integrity (finding)

Skin at risk of breakdown (finding)

Unhealthy skin (finding)

You can change the view in the *Concept Walker* panel to reflect the hierarchy that includes concepts from any of the Ontylog Extension namespaces linked to the Ontylog subscription namespace in the *Namespace* field. In the illustration, the *Namespace* field pulldown list includes all Extension namespaces linked to the Ontylog subscription namespace **SNOMED CT**; click the desired namespace to change the *Concept Walker* panel view.


Focus Concept: Finding of integrity of skin (finding) [SNOMED CT]

View Axis: Superconcepts / Subconcepts

Namespace: SNOMED CT

SNOMED CT

SNOMED CT / snomed_ext

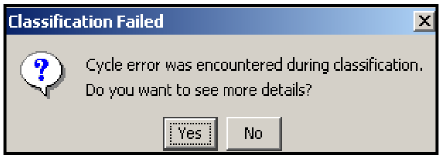
SNOMED CT / SNOMED CT EXTENSION

Classification Errors

The Classifier gives you the option to view any error situations severe enough to prevent classification. The following three types of classification errors are in this category.

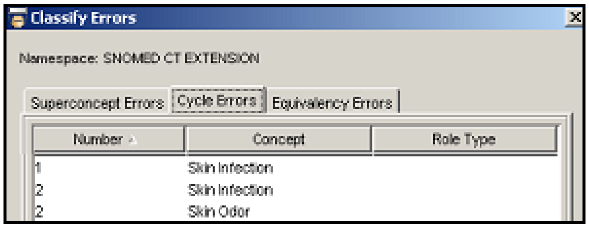
- **Cycle Errors** - This type of error occurs when classification of either a defining concept (i.e., superconcept) or role definition in the Ontylog Extension namespace would create a contradiction (i.e., a cyclic condition) in the Ontylog subscription namespace hierarchy. **Example**: In the Extension namespace you create a new concept, and define two superconcepts. If classification of the Extension namespace would place the new concept higher in the subscription namespace hierarchy than one of the defined superconcepts, a cycle error will occur.

  If there are one or more cycle errors, a message window displays offering you the option to list those concepts that produced the errors.

  Cycle error was encountered during classification.
  Do you want to see more details?

  Click **Yes** to display the *Classification Error* window (the *Cycle Errors* tab on the window is selected already).

  Namespace: SNOMED CT EXTENSION

Number	Concept	Role Type
1	Skin Infection	
2	Skin Infection	
2	Skin Odor	

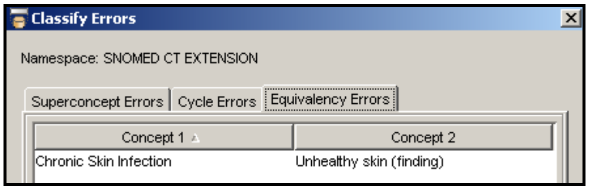
  The information in the *Cycle* tab references the **Cycle** number, the **Concept** name in the cycle, and the name of the **Role Type** through which this cycle is forming (the **Role Type** is blank if the cycle is due to a superconcept relationship). You can modify the sort by clicking the column headers.

  You can drag any of the listed concept names to the *Concept/Term Details* panel to view attribute details and make necessary edits (make sure the *Concept/Term Details* panel is in the Defined view when you make the edits). Click on the *Equivalency Errors* tab or *Superconcept Errors* tab to list concepts specific to each of those classification error situations.

- **Equivalency Errors** - This type of error occurs when classification of a defining role for a concept (a concept with its Primitive/Defined attribute set to **Defined**) in the Ontylog Extension namespace would create an equivalency (i.e., two concepts on the same hierarchal level) in the subscription namespace hierarchy.

If there are one or more equivalency errors, a message window displays offering you the option to list those concepts that produced the errors.

Click **Yes** to display the *Classification Error* window (the *Equivalency Errors* tab on the window is selected already).

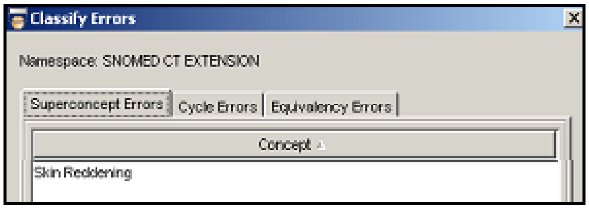


Namespace: SNOMED CT EXTENSION

Concept 1	Concept 2
Chronic Skin Infection	Unhealthy skin (finding)

Modify the sort by clicking the column headers. You can drag any of the listed concept names to the *Concept/Term Details* panel to view attribute details and make necessary edits (make sure the *Concept/Term Details* panel is in the Defined view when you make the edits). Click on the *Cycle Errors* tab or *Superconcept Errors* tab to list concepts specific to each of those classification error situations.

- **Superconcept Errors** - This type of error occurs if a concept in the Ontylog Extension namespace does not have a parent (i.e., superconcept) assigned to it. If there are one or more superconcept errors, a message window displays offering you the option to list those concepts that produced the errors. Click **Yes** to display the *Classification Error* window (the *Superconcept Errors* tab on the window is selected already).



Namespace: SNOMED CT EXTENSION

Concept
Skin Reddening

You can modify the sort by clicking the column header.

You can drag any of the listed concept names to the *Concept/Term Details* panel to view attribute details and make necessary edits (make sure the *Concept/Term Details* panel is in the Defined view when you make the edits). Click on the *Cycle Errors* tab or *Equivalency Errors* tab to list concepts specific to each of those classification error situations.

Note that you can display the *Classification Error* window by selecting **Classify Errors** from the *DTS Editor Main* window **Tools** menu. The *Classification Error* window lists errors that occurred during the most recent classification of the namespace.

Import Ontylog Subscription Updates with a "Classification" Graph

Overview

The **DTS Subscription Import Wizard** guides you through the import of new subscription content into your DTS Knowledgebase. Refer to the discussions in *Appendix B - DTS Subscription Import Wizard* in the *Knowledgebase Administrators Guide* for procedures on using the Import Wizard to import new subscription content.

The discussions in this section pertain only to clients who import **Ontylog Subscription** updates provided by Apelon. In order to run classification for an Ontylog Subscription **Extension** namespace, the linked subscription namespace must have a **Classification Graph** established for it.

Classification Graph Import

The namespace content that Apelon provides as part of the subscription update process is made available to you in the form of CDF files. For each Ontylog namespace subscription update, Apelon also makes available a serialized **classifier** file (i.e., **Classification Graph**) along with the CDF update files.

An updated version of the Ontylog subscription namespace's classification graph is available for import with that namespace's content (**diff**) update. In order for you to classify linked Extension namespaces for an Ontylog subscription namespace, along with the CDF files you must import the version of the classification graph that matches your subscription namespace version. This populates the appropriate DTS table.

Import a Classification Graph

Two versions of the Ontylog subscription update will be available for import, one **with** the classification graph, and one **without** the graph. If you intend to classify linked Extension namespaces for the subscription namespace, you must import the subscription update that includes the classification graph.

Import an Initial Classification Graph

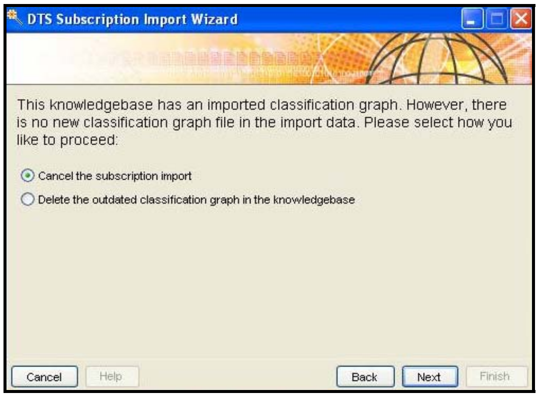
- If your intent is to eventually classify Extension namespaces for the namespace for which you are importing updates, you must import the subscription update version that includes the classification graph.
- The classification graph version must match your subscription namespace version in order for you to classify linked Extension namespaces.
- For subsequent subscription namespace updates, you must import the update version that includes the updated classification graph in order to classify Extension namespaces for the subscription namespace.

Import an Updated Version of a Classification Graph

- If your current subscription namespace contains a classification graph already, you must import the subscription update version that also includes the updated version of the classification graph.

- Only one version of the classifier graph can exist at a time for each subscription namespace; the old version of the classifier graph is removed when you import the updated classification graph.

- If your current subscription namespace contains a classification graph, and you import the subscription update version without the updated classification graph, a warning message displays, along with options to continue the import (which deletes your current, outdated graph) or **Cancel** the subscription import.



This knowledgebase has an imported classification graph. However, there is no new classification graph file in the import data. Please select how you like to proceed:

● Cancel the subscription import

○ Delete the outdated classification graph in the knowledgebase

  - The subscription update will terminate if you click **Cancel the subscription import**; at this point you can select the subscription update version that includes the updated version of the classification graph.

  - If you click **Delete the outdated version of the classification graph in the knowledgebase**, the import will proceed without the graph.

    - The old version of the classifier graph is removed.

    - You will not be able to classify the subscription's Extension namespaces until you import the graph with the version that matches the subscription version.

  - At a later time, you can import the required classifier graph files.

    - **DTS_VERSION.new** (the version must match the current subscription namespace version in your knowledgebase)

    - **DTS_CLASSIFIER_GRAPH.full** (the version must match the current subscription namespace version in your knowledgebase)

    - **50000.graph**
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